

Box, No. 1742

ESSEX INSTITUTE.

PRESENTED BY

Lump Bhoate

CHAPTER V.

OF THE LIBRARY.

The Library Committee shall divide the books and other articles belonging to the Library into three classes, namely: (a) those which are not to be removed from the building; (b) those which may be taken from the halls only by written permission of three members of the committee, who shall take a receipt for the same and be responsible for their safe return; (c) those which may circulate under the following rules.

Members shall be entitled to take from the Library one folio, or two quarto volumes, or four volumes of any lesser fold, with the plates belonging to the same, upon having them recorded by the Librarian, or Assistant Librarian, and promising to make good any damage they sustain, while in their possession, and to replace the same if lost, or pay the sum fixed by the Library Committee.

No person shall lend any book belonging to the Institute, excepting to a member, under a penalty of one dollar for every such offence.

The Library Committee may allow members to take more than the allotted number of books upon a written application, and may also permit other persons than members to use the Library, under such conditions as they may impose.

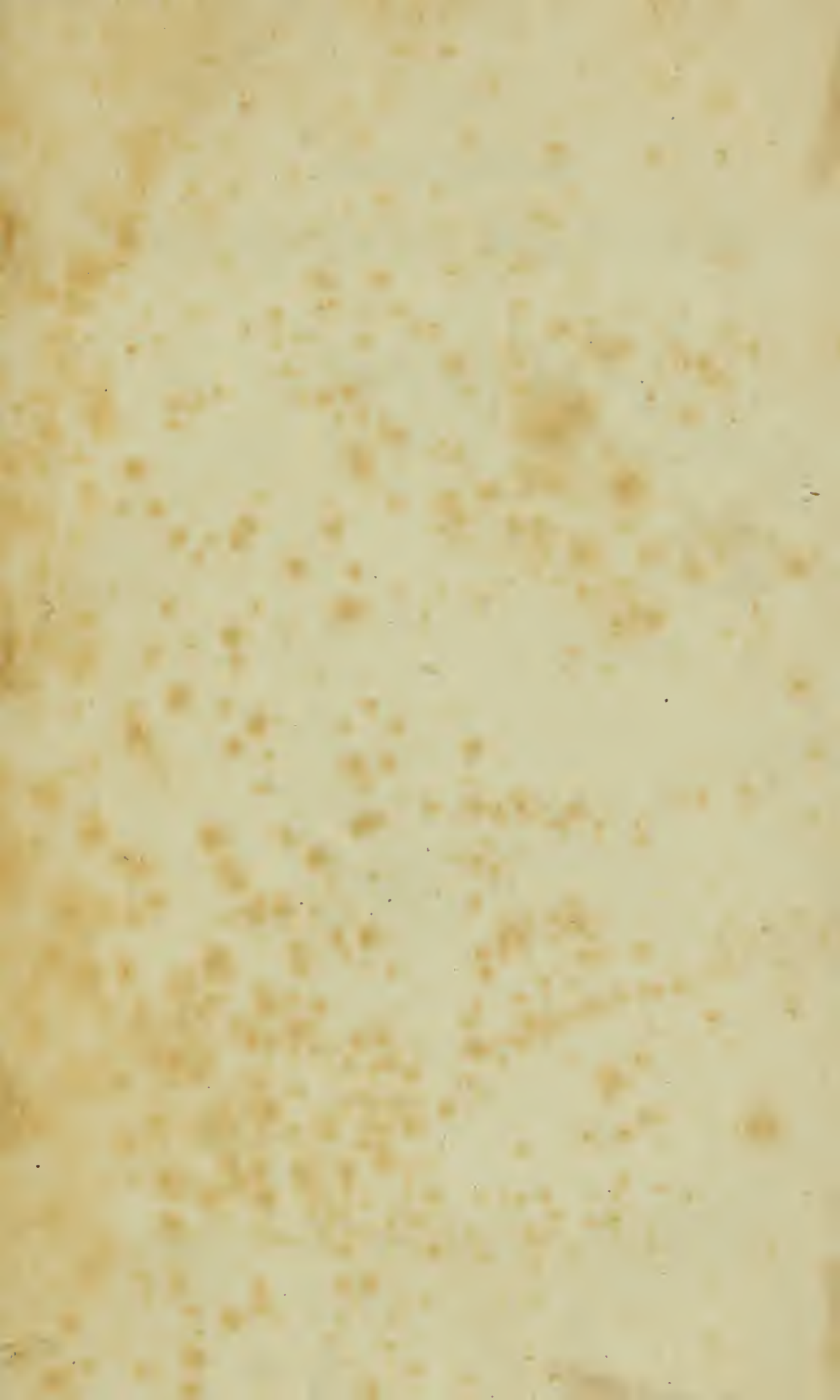
No person shall detain any book longer than four weeks from the time of its being taken from the Library, if notified that the same is wanted by another member, under a penalty of five cents per day, and no volume shall be retained longer than three months at one time under the same penalty.

The Librarian shall have power by order of the Library Committee to call in any volume after it has been retained by a member for ten days.

On or before the first Wednesday in May, all books shall be returned to the Library, and a penalty of five cents per day shall be imposed for each volume detained.

Labels designating the class to which each book belongs shall be placed upon its cover.

No book shall be allowed to circulate until one month after its reception.



THE

AMERICAN

REVIEW



THE
AMERICAN
MEDICAL REVIEW,
AND
JOURNAL

OF ORIGINAL AND SELECTED PAPERS IN MEDICINE
AND SURGERY.

VOL. III.

APRIL, 1826.

No. 1.

CONDUCTED BY

JOHN EBERLE, M. D.

PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE IN THE
JEFFERSON MEDICAL COLLEGE, &c. &c.

NATHAN SMITH, M. D.

PROFESSOR OF SURGERY AND THE THEORY AND PRACTICE OF
MEDICINE IN YALE COLLEGE,

GEORGE M'CLELLAN, M.D.

PROFESSOR OF SURGERY IN JEFFERSON COLLEGE,

NATHAN R. SMITH, M.D.

PROFESSOR OF ANATOMY AND PHYSIOLOGY IN JEFFERSON
COLLEGE,

And Assisted by an Association of Physicians & Surgeons.

Auctoribus suis constat honos.—BACON.

PHILADELPHIA:

PUBLISHED (QUARTERLY) BY A. SHERMAN.

Subscriptions received also by E. J. Coale, Baltimore; J. Fitzwhylsonn, Richmond; S. C. Schenk, New York; D. Steel and Son, Albany; W. Williams, Utica; Hez. Howe, New Haven; H. Huntington, Hartford, R. P. & C. Williams, Boston; Whipple & Lawrence, Salem; S. Whipple & Co. Newburyport; Clarendon Harris, Worcester, Mass. and W. W. Worsley, Lexington, Ky.

R. Wright, Printer.

1826.

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

RECEIVED

CONTENTS.

REVIEWS.

ART.	Page
I. Charakteristik der Franzoesischen Medicin. Von JOH. LUDW. CASPER, M. D. &c. Leipzig, 1822,	5
II. The Anatomy of the Foetal Brain, with a comparative exposition of its Structure in Animals. By FREDERIC TIEDEMANN, Prof. in the University of Heidelberg, Member of the Academy of Sciences of Munich and Berlin, &c. &c. Translated from the French of A. I. L. Jourdan, by William Bennett, M. D. Edinburgh, 1825, - - - - -	26
III. Further Observations on the Lateral or Serpentine Curvature of the Spine, and on the Treatment of Contracted Limbs, &c. By JOHN SHAW, Surgeon and Lecturer on Anatomy. London, 1825, -	43
IV. Researches into the Nature and Treatment of Dropsy in the Brain, Chest, Abdomen, Ovarium, and Skin, &c. By JOSEPH AYRE, M. D. Member of the College of Physicians, &c. London, 1825, - - -	71
V. An Essay on Headachs, and on their Cure. By WALTER VAUGHAN, M. D. of the Royal College of Physicians in London. London, 1825, - - -	106
VI. A Treatise on the Effects and Properties of Cold, with a Sketch Historioal and Medical of the Russian Campaign. By MORICHEAU BEAUPRE, M. D. Regimental Surgeon in the French Service. Edinburgh, 1826, - - - - -	126

ORIGINAL DEPARTMENT.

I. On the Successive Formations of Organized Beings,	154
II. On the Uncertainty of the Signs of the Rupture of the Uterus. By WM. CHURCH, M. D. of Pittsburgh,	175
III. A Case of Tracheotomy for the removal of a Foreign Substance from the Trachea. By JOHN ATLEE, M. D. of Lancaster, Pennsylvania, - - - - -	191
IV. An Inaugural Dissertation on the Properties of the Apocynum Cannabinum, (Indian Hemp;) submitted to the Trustees, President, and Medical Faculty of Jefferson College. By M. L. KNAPP, Licentiate of the Chenango Co. Medical Society, New York,	194

CONTENTS.

IMPROVEMENTS IN MEDICINE, SURGERY, &c.

Anatomy.

1. Lachrymal Nerve, - - - - - 213
2. M. Bogros on the Tubular Structure of the Nerves, - - - - - *ib.*

Practice of Medicine and Pathology.

3. Observations on the Saliva during the action of Mercury on the System, - - - - - *ib.*
4. Fosbrooke on the Relations of the Kidneys and the Brain, 214
5. M. Flourens on the sense of Hearing and the causes of Deafness, *ib.*
6. M. Meyraux on the Cauterization of the Pustules in Small Pox, 215
7. Dyspnœa, singular Case of, - - - - - 216
8. Observations upon diseases of the Nervous System, - - - 217
9. Epileptic Convulsions from slight Injuries on the Head, - 219
10. On the Milky Appearance of the Serum in several Diseases, 221
11. Cerebral Croup, - - - - - 222
12. Cases of Otitis, or Acute Inflammatory Ear-ach, successfully treated by Emetics; with Sketches of their Remedial Effects in Chronic and Nervous Ear-ach, Erysipelas, Gout, and the Diseases of Pregnant Females, - - - - - 225

Surgery.

13. Re-union of a Nose which had been completely separated, 233
14. Necrosis, - - - - - 234
15. M. Janson's Case of removing a large portion of the Scapula, 237

Materia Medica.

16. On a New Preparation of Croton Tigilium, - - - - - *ib.*
17. Cupping Glasses to Poisoned Wounds, - - - - - 238
18. Effects of Iodine, - - - - - 239



DESCRIPTION OF THE PLATE.

1. Summit-branch, with a pair of follicles depending from the panicle.
2. A portion of the recent root and stem.
3. Specimen of the dried root

THE
AMERICAN
MEDICAL REVIEW,
AND
JOURNAL.

VOL. III.

APRIL, 1826.

No. I.

ART. I.—*Charakteristik der Franzoesichen Medicin.* Von
JOH. LUD. CASPER. Leipzig, 1822.

IN a former number of this Journal we gave an account of a part of this interesting volume; and we now proceed to the analysis of what we were then, from want of room, obliged to defer. The principal subject of the portion of this volume which remains to be noticed, is embraced in the eighth chapter, and consists of a circumstantial and well digested account of the public and private institutions for the reception of the insane, together with the prevailing opinions in France relative to the cause, nature, and treatment of mania.

The French have had peculiar facilities for investigating the pathology and treatment of mental diseases; and they have, perhaps, made greater progress in this department of the healing art than any other nation. Agitated and convulsed for nearly a half a century with the mightiest political storms—distracted and confounded in the vortex of anarchy and faction, and oppressed with all the appalling evils of a military despotism, France was long placed amid circumstances peculiarly calculated to excite the most turbulent passions on the one hand, and to prostrate the hopes and happiness of her

VOL. III.—B

subjects on the other, and thus to bring into play the most powerful exciting causes of mental disease. Hence in France, especially in Paris,*—the focus of its political intrigues, cabals, and enormities,—insanity in all its various forms has been more common than in any other country. It is to this circumstance, in part, that we must ascribe the great comparative success with which the pathology and treatment of mental diseases have been investigated in France. The large and numerous hospitals in Paris dedicated to the reception of those unfortunate beings who suffer under this severe infliction of Providence, afford the most extensive opportunities for observation; and the peculiar attachment of the French to autopsic examinations, has enabled them, under these advantages of opportunity, to shed very considerable light on the nature and treatment of these diseases.

The author commences his subject with a short view of the leading theoretical notions of the French physicians concerning insanity. He observes, that many of the French writers on this subject have adopted the erroneous doctrine, that all mental diseases are essentially dependant on some morbid corporeal affection, either functional or organic. He thinks, with many others, that the mind may become idiosynthetically deranged and without any previous and necessary derangement in the animal system.

Though well convinced that the phenomena of mind depend on the action of an independent principle, and that they are by no means referrible to the action of matter, we are inclined to the opinion, that in all instances of insanity, the mental aberration depends on some abnormal condition in the animal system. Some physicians have endeavoured to ascertain the seat of the primary irritation of insanity, but the observations

* According to *Tenon** there were but 1009 insane persons in the Parisian hospitals and private institutions in 1786. Immediately *after* the revolution there were upwards of 2000.

* *Memoirs sur les hospitaux de Paris*, 1788.

we have on this subject, are as yet exceedingly unsatisfactory and vague. A late French author maintains, that the primary seat of mental derangement is always in the *epigastric region*; from which, as from a centre,—*comme par une espèce d'irradiation*—the morbid irritation is propagated to the sensorium. Although we are far from adopting this opinion—which is much too limited and exclusive to be admitted in the pathology of mental diseases, we do think that there is sufficient evidence extant to render it extremely probable, that, in some instances at least, the primary cause of insanity consists in an irritation or morbid condition located in some of the abdominal viscera. This is an old doctrine,—Aretæus† observes, “*Verum præcipuæ furoris et melancholiæ sedes viscera sunt.*” The intimate relation subsisting between the brain and the chylopoietic viscera is indeed well known. A derangement of the functions of either of these parts of the system, seldom fails to induce a corresponding disorder in the functions of the other. Sudden fear, or disappointment, or anger, dissipates, in a moment, the keenest appetite; and a deranged state of the digestive organs, is no less apt to produce a torpor of intellect, irresolution, and mental distress. In whatever part of the system the *primary* irritation may be located, it must, however, always be communicated to the *brain*, the organ of the mind, before the intellectual faculties can be deranged; and the immediate cause of insanity may therefore be regarded as a morbid condition of this organ, existing either as a sympathetic or idiopathic affection. As the musician cannot draw melodious tones from an instrument that is defective, so the mind cannot produce harmonious and sound thought, when its organ, the brain, is in a state of morbid irritation; and it matters not whether this morbid condition be the result of causes acting immediately on the brain, or of such as primarily affect other organs whose sympathetic con-

* *Nouvelles Recherches sur les maladies de l'esprit*: par A. Matthey, de Genere. Paris 1816.

† *De caus. et sig. morb. diut.* l. i. c. 37.

nexion with the sensorium, is such as to affect its functions. But, not to take up any more room with speculations of this sort, we pass on to what may be deemed more useful and interesting on this subject.

It is a remarkable circumstance, that insanity occurs but very seldom among rude and uncivilized nations; and that the frequency of its occurrence among a people, bears a pretty close relation to the degree of refinement and civilization at which they have arrived. Among the European nations, Spain has the smallest number of maniacal subjects; and France has a larger proportion, with reference to its population, than England. We are aware that Foderé asserts, "that England possesses more than four times the number of insane persons than France;"* but from the best accounts which we have on this subject, this estimate appears to be exceedingly erroneous. According to our author's estimate, drawn from the best sources, the proportion of insane to the population in England and France is as follows:

	<i>Insane.</i>	<i>Population.</i>	
In Paris there are	2000 to	700,000	that is $5\frac{1}{2}$: 2000
Depart. des hautes Pyrenées, }	121 to	200,000	that is $1\frac{1}{4}$: 2000
Dep. des bouches- du-Rhone, }	160 to	400,000	that is $\frac{4}{5}$: 2000
England & Wales,†	6000 to	12,000,000	that is 1 : 2000
Scotland,	5000 to	2,000,000	that is 5 : 2000
Mary-le Bone,	50 to	80,000	that is $1\frac{1}{4}$: 2000
London,	2005 to	1,200,000	that is $3\frac{1}{3}$: 2000

In speaking of those political, moral, and physical occurrences, which operated especially in increasing the instances of insanity, our author observes that the horrors and calamities which attended the French revolution, had the effect of augmenting the number of insane persons in Paris in a two-fold ratio. He states, also, that the great scarcity of bread in

* *Traité' du Delire.* Paris 1817, l. c. 11, p. 31.

† G. M. Burrows' *Inquiry into certain errors relative to Insanity.* Lond. 1820, l.c. p. 98.

Paris in the year 1816, during which time the poorer class of people were almost in a state of famine, was followed in 1817 with an uncommon increase in the number of maniacal cases. During this year more than double the usual number of insane persons were received in the hospital *Salpêtrière*. The same increase of insanity occurred in Ireland in the year 1815—a year memorable for the calamitous dearth of provisions in that country.

In relation to the comparative frequency of insanity in the two sexes, it appears from the data collected by our author, that in France mental derangement is more common with the female than the male sex; while in England the reverse seems to be the case.

According to the inquiries of Esquirol insanity is most apt to occur between the ages of twenty-five and thirty. Pinel considers the period during which persons are most liable to mental derangement, to be from the twentieth to the fortieth year. Our author gives the following tabular statement, drawn from the observations of Pinel, Esquirol, Haslam and others, relative to this point.

Age.	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80
Pinel, in the Bicetre from 1784—94 (males) ad- mitted,	65	339	380	236	130	51	0
Esquirol in Salpêtrière from 1811—14 (females) admitted,	171	135	403	205	115	66	23
Haslam, Bethlem hospi- tal, from 1784—94 ad- mitted,	113	488	527	362	143	131	0
Esquirol's private institu- tion, 1811—14 (wealthy patients,)	0	150	78	30	46	15	8
Hospital of Retreat at York, 1796—1811 (qua- kers,)	8	44	28	23	27	9	4
	357	1156	1416	861	661	172	35

Aetiology. Georget divides the causes of insanity into three classes, viz: the predisposing; the direct or cerebral; and the indirect or sympathetic exciting causes. Among the first he mentions hereditary predisposition, parturition, climacteric periods of life, and old age. The second class he subdivides into physical and moral causes. The third into physiological and pathological. Among the *physiological*, indirect, or sympathetic causes, he names suppressed habitual evacuations and secretions; and among the *pathological* indirect causes, inebriety, fever, apoplexy, worms &c. Our author saw many cases of insanity which were the consequence of onanism and ungovernable venereal passion. During his attendance at Esquirols' private institution, he saw a deranged female, whose countenance always wore the most libidinous and voluptuous cast, soliciting every male who approached her to amorous intercourse. "*Savez-vous,*" said she to our author, "*savez-vous ma maladie? C'est l'amour. Il me faut un mari et je serais guérie. On nomme ma maladie hystérique, mais ce n'est pas cela—il faudrait me guérir!*" I was at service, said she smiling, in the military school, and O! how healthy I was then! Had you a husband then said our author? "*mon-sieur, j'en avais quinze.*" I had fifteen—was her reply. He also relates the case of a well educated and genteel girl, aged nineteen, who suffered frequent and protracted hysteric convulsions. After a long and fruitless attempt to relieve her by remediate applications, she suddenly disappeared from her father's house and no one knew what had become of her. Some months after absenting herself from her home, Esquirol, who had previously attended her, at her father's house, met her in an obscure part of Paris and immediately recognized her. "What are you doing here?" said Esquirol; "*je me guéris,*" was the reply. Soon afterwards she aborbed twice, became cured of her malady, and returned to her home sorrowing and resolved to lead a virtuous life.

The following table affords an interesting view of the

relative frequency of mental derangement from its various causes.

<i>Physical Causes.</i>	Salpêtrière, in the years 1811-12.	Esquirol's private hos. 1811-12.	Bicêtre, 1803-13.
Hereditary, - - - -	105	150	
Pregnancy, - - - -	11	4	
Epilepsy, - - - -	11	2	118
Suppressed Menstruation, -	55	19	
Puerperal state, - - -	52	21	
Old Age, - - - -	60	4	36
Coup du soleil, - - -	12	4	
Injuries of the Head, - -	14	4	
Congenital, - - - -			69
Fever, - - - -	13	12	} 157
Apoplexy, - - - -	60	10	
Malformation of the Skull,			9
Fire & other Injurious Substances,			27
Syphilis, - - - -	8	1	
Imprudent use of Mercury,	14	18	
Onanism, - - - -			21
Intoxication, - - - -			106
Worms, - - - -	24	4	
Suppressed Cutaneous Diseases,			6
Suppressed Hæmorrhoids,			
<i>Moral Causes.</i>			
Grief, - - - -	105	31	99
Unfortunate Love, - - -	46	25	37
Fanaticism, - - - -	8	1	55
Fright, - - - -	38	8	
Jealousy, - - - -	18	14	
Anger, - - - -	16		
Distress and Want, - - -	77	14	116
Mortified pride, - - -	1	16	
Disappointed Ambition, -		12	78
Intense and Protracted Study,		13	49
Misanthropy, - - - -		2	
Vives Révolutions d'esprit,			58
Political Causes, - - -	14	31	

The author observes that Esquirol states in his lectures that he has seen eleven persons cured of mania after the expulsion of a large number of worms, by the use of anthelmintics. The author saw a case of mania occasioned by the healing up of a fistulous ulcer on the left arm. The patient was admitted into the hospital, in a state of complete mania. An epispastic was applied to the arm; this produced an extensive phlegmonous inflammation of the whole extremity; the fistulous ulcer returned, and the patient speedily recovered the regular exercise of his mental faculties. In another instance he witnessed the re-opening of a habitual ulcer on the leg, by the application of blisters to the part, restore the lost reason of a patient. A young man was for seven years annually affected with erysipelas on different parts of the body. During the eighth year no erysipelatous inflammation made its appearance; but instead of it he became melancholic, and attempted suicide. Four months after this he became affected with intermittent fever, during the first ten paroxysms of which he was perfectly free from his mental disease. With the eleventh paroxysm the fever ceased, but his melancholy returned and continued until the following year, when he was again attacked with his erysipelatous affection, and freed of his melancholy.

Prognostic observations. The author has brought together many interesting facts and observations concerning the degree of sanability of mental diseases. Esquirol, and more recently Georget, maintains that in no country are more mental diseases cured than in France. Burrows protests against this observation and calls it a groundless *gasconade*. According to the following tabular statement, however, the palm would seem to belong to the French.

<i>FRANCE.</i>	Period.	Number treated.	Cured.	Died.	Remain.	Discharged parti- ally relieved.	Discharged.	Decimal propor- tion of cured.
Hosp. Salpêtrière,								
Pinel,	1801-1805	1002	473	250	270			0,47 1-5
Esquirol,	1806	333	160	33	140			,48
the same,	1807	289	136	70	83			,47 1-18
Pinel,	1812-1814	891	413					,46 1-5
Hospital Bicetre,—								
Chamseru,	1807	102	33					,32 1-3
Hosp. Charenton,								
Pinel,	1789-1800	97	33					,34
Foderé,	1803	499	161					,32 1-4
Royer,—Collard,	1806	355	134	36	142		5	,36 2-3
Chamseru,	$\frac{1}{2}$ of 1807	214	91					,42 1-2
Esquirol's priv. Ins.	1801-1813	335	173					,51 7-11
Dubuisson's,		300	177					,59
<i>Sum for France:</i>		4427	1984					0,44 9-11

<i>ENGLAND.</i>								
Bethlem, according to Haslam,	1748-1794	8874	2557					,28 7-9
Haslam, (dif. acct.)	1784-1794	1564	574					,34 1-2
St. Lukes, Tuke,	1751-1819	12173	5091	1013	166		5903	,41 5-6
Hospital at York,								
Foderé,	1777-1807	1739	746	192	141	410	250	,42 7-8
Retreat at York,								
Tuke,	1796-1811	149	49	26	47	18	9	,32 4-5
Hosp. at Manches- ter, Foderé,	1766-1805	1686	667	190	85	220	324	,39 1-2
Hosp. at Montrose, Act of Parl.	1805-1815	154	54	36	54	25	5	,22 1-13
Hosp. at Notting- ham, Burrows,	1812-1819	336	179	39	48		70	,53 1-4
Hosp. at Exeter, Burrows,	1801-1819	626	355	53	45		173	,56 5-7
Hosp. at Glasgow, Burrows,	1819	183	39	10	106		28	,21 1-3
Hosp. at Manches- ter, Burrows,	1820	350	74	31	190	2	71	,21 1-7
Bethlem, Act of Parliament,	1800 1815	4810	1839					,39 1-4
<i>Sum for England:</i>		32744	12254					0,37 2-5

From this statement it would appear as a general result, that in France 0,44 9-11 of maniacal patients are cured. In England the proportion is not so great, being only 0,37 2-5.

The medium proportion of cures effected in the Hospital Salpêtrière, is 0,47. At St. Luke's hospital in London, the proportion cured during a period of more than seventy years is only 41 5-6. At Charenton the proportion is 0,42 1-3 whilst at the Bethlem hospital it is only 39 1-4. If, in addition to these comparative results, we take into view the fact, that inveterate cases, and such as have already been discharged from other institutions as incurable, are not admitted into Bethlem and St. Luke's, the proportion of cures effected is still more strikingly in favour of the French. In looking over the foregoing table we observe also that at the Hospital Charenton, the annual number of cures effected is pretty uniform during a period of fourteen years. At Bethlem, on the contrary, we perceive that the difference in the proportion of cures effected in the forty-six years—from 1748 to 1794—and the fifteen years—from 1800 to 1815, is 11 per centum in favour of the latter period; a strong evidence that in England the treatment of mental diseases has within the last twenty-five years received great improvements.

As already intimated, no patient is received into the two English hospitals—Bethlem and St. Luke's, who have already been more than *one year* affected with insanity; and all who have been under remediate treatment in these institutions for *one year* without any amendment, *are discharged as incurable*. How very wrong and injurious these regulations are, is manifested by the following tabular statement of cures effected by Esquirol in the Salpêtrière during eleven successive years.

There were treated in the years

	1804	1805	1806	1807	1808	1809	1810	1811	1812	1813	
Total number.	209	212	206	204	188	209	190	163	208	216	total
Of which were cured during the											
1st year,	64	73	78	60	64	48	48	44	75	50	604
2d,	47	54	49	55	57	64	51	30	41	49	493
3d,	7	4	10	11	4	9	7	8	11		71
4th,	4	2	3	1	2	4	1	3			20
5th,	3	2	1		1	1	3				11
6th,	2	1	1	2		3					9
7th,			1		2						3
8th,	1										1
9th,	1										1
10th,											
11th,		1									1
	129	137	143	129	130	129	110	85	127	99	1218

According to this statement we see that one-half of all the cures were effected during the *first* year; nearly one-third in the second, and a seventh in the third year; and that cures occurred in all the following years up to the tenth after the admission of the patients.

In the *Retreat* at York, in England, out of fifty-six patients cured of insanity, twenty-seven cures were effected during the first year, thirteen in the second, three in the third, one in the fourth, five in the fifth, three in the seventh, two in the ninth, one in the thirteenth, and one in the fifteenth. Pinel observes that after three years ineffectual treatment of cases of insanity the chance of cure will be about as one to thirty. *Veitch* states that in 1816 out of twenty-eight cases of *recent* insanity he cured eighteen in his private institution, but out of one hundred and twenty-five *inveterate* cases he cured only five. In the Glasgow institution (in 1819) out of sixty-four recent cases thirty-five were cured, and of thirty old cases only two were cured.

In relation to the liability of *relapses*, in mental diseases, Esquirol observes, that in the Hospital Salpêtrière, relapses, according to his experience, have occurred in the proportion of about one out of ten. This agrees with facts stated by

other writers.* With regard to the ratio of *mortality*, it appears from data published, that the number of deaths that took place at York, were one out of nine; at Manchester one out of nine; at Montrose one out of four; at Nottingham one out of eight, and at Exeter one out of twelve.

According to the observations of Esquirol and Georget, the mortality is greater during the autumn than in spring. Of the seven hundred and ninety insane females that died during ten years (from 1804-14) in the hospital Salpêtrière, one hundred and seventy-five died during the months of March, April, and May. The number of deaths in June, July, and August, was one hundred and seventy-four; and in September, October, and November, they amounted to two hundred and thirty-four; in the three remaining winter months two hundred and seven deaths occurred. With regard to *age*, it appears from the same observations that the greatest number die between the ages of forty and fifty with females; and between thirty and forty years with males.

Our author states that he saw a maniacal female in the hospital *Salpêtrière* in whom the mental disease alternated regularly with symptoms of phthisis. When the cough and hectic symptoms were present she was wholly free from derangement of mind, and on the contrary when the phthisical symptoms were absent she was furiously insane. Instances of complication of phthisis with mania have been mentioned by other writers, although Haslam† denies that such a complication has ever occurred, and maintains that cases of this sort are to be regarded merely as co-existing diseases, without any mutual dependance, and that the abatement of the one is never the result of the increase or reappearance of the other.

It appears from the extensive observations of Dubuisson,‡ that maniacal subjects are much less obnoxious to contagious

* Dict. des. Sc. Med. Art. Folié.

† Loc. Citat. 2 edit. p. 159.

‡ Des Vésanies ou mald. Mentales. Paris 1816, p. 173.

and epidemic diseases than those who are sane. This accords with the earlier observations of Mead, Willis, Cox, Greding, Reil, Rush and others. The most favourable season of the year, for the cure of mental diseases, is autumn; the most unfavourable winter. Mania occurring in spring or summer, have in general an acute course, and are apt to terminate during winter; those that occur in winter commonly terminate in spring.*

Treatment.—In France and in England, very little medicine is employed in the treatment of mental diseases. In proof of this observation we need only advert to the following statement of expenses incurred for food and medicines at the Glasgow and Exeter Institutions, for the year 1819.

For Meat, - - -	£380
Bread, - - -	329
Beer, - - -	200
Cheese and Butter, -	316
For Medicines, - -	18

The number of patients treated during this year was 183.

The amount expended at the Exeter Hospital for food, during the year 1819, amounted to £1162.

The expense for medicines and instruments during the same year, was but £33.

In the Institution at Nottingham, during the same year, the expenses for the necessaries of life were £920.

The expenses for medicines, £7.

Fifty years ago the amount of expenses for medicines for the same number of patients, during the same period, would have been much greater, although the proportion of cures performed was then very considerably smaller. Even at the present day, much more medicine is employed in the treatment of insanity in the German Hospitals, than in those of England and France, although the success in the former is

* Esquirol. Article *Folie* Dic. des Sci: Med.

greatly inferior to that which is obtained in the latter.* The truth is, *medicines*, properly so called, are by no means the most powerful agents in the treatment of a majority of mental diseases. Much more is to be affected by *moral* influences,—by a kind and humane treatment, and by comfortable seclusion. It is delightful, says the author, to see the winning and affectionate manner in which Esquirol, Pariset and Wright approach their patients. They enter into their feelings,—take an interest in their real and imagined pleasures and pains, sooth and admonish them in a tone of kindness, and appear among them more in the character of their comforter and friend, than as their physician. It is by a *moral* treatment of this kind, more than by any articles of the *materia medica*, that the greatest good is done in the cure of mental diseases. The cruel and coersive measures that were formerly adopted in the treatment of insane patients are as injurious as they are repugnant to the best feelings of the heart. Humanity and reason combine against the employment of such measures; and the triumph of reason and good-feeling over cruelty and error, is no where more glorious than in the improvement that has been effected in this respect. Instead of subduing the miserable maniac with implements of terror and torture, or of keeping him in subjection with threatening looks and words, and endeavouring to put reason right by drugs, chains, and cells, physicians begin to see that a kindlier mode of management will often call back the unsettled and wandering intellect, when a contrary course would fix it in its wild mood.

In the Parisian hospitals the noisy and unruly are carefully separated from the quiet and manageable patients; and the only coersive contrivance in use is the *strait-jacket*. In Paris this mode of coercion is very common. It is certainly, however, an offensive and oppressive mode of restraining per-

* In Berlin the proportion of cures effected is only about 0,28, whereas in France, it is on average 0,44.

sons in a state of furious mania. Haslam, condemns it in strong terms. He employs instead of it, a belt from eight to ten inches wide. This is passed round the lower part of the body above the arch of the pubis, and fastened on the back with strong buckles. On each side, leather bags are fastened; into these the hands of the patient are put, and secured therein, by means of short manacles. By this contrivance the respiration is not impeded as is often the case with the *strait-waistcoat*; nor is the perspiration suffered to become injurious and offensive, as is sometimes the case by its being absorbed and retained in the waistcoat. Patients may walk about with the *belt* without much inconvenience, and they always suffer it with much more patience than the *jacket*.

A very simple and excellent mode of moderating the violence of a paroxysm of furious mania, is excluding *the light* from the patient. This is daily practised in the *Salpêtrière*. When a maniac begins to rave violently, a piece of strong cloth is quickly thrown round the head, and fastened over the eyes. This almost always produces an immediate abatement of his fury, and he may then be easily conducted into his apartment and properly secured. Esquirol, particularly, lays great stress on the soothing influence of darkness on maniacs. Indeed, he carries his ideas concerning the influence of *light* so far, as to maintain that the reputed influence of the moon on insane persons is to be referred wholly to the light which it sheds during night. Without denying the exciting power of light on maniacs, we may nevertheless justly doubt the correctness of this opinion of Esquirol, concerning the lunar influence. We have seen an insane person whose paroxysms recurred at *new* instead of *full* moon, and who consequently could not have been influenced in the way supposed by Esquirol. Our author states, that in Dubuisson's private Institution, there is a man whose paroxysms of mania regularly recur at each period of *new* and *full* moon.

At the hospital Charenton, there are two other means of coercion employed, one of which, says our author, may be

recommended, but the other is in some degree objectionable. The first is a coffin-shaped basket, about six feet long, to which a lid of wicker works fits with the head end cut or scooped out so as to leave the patient's head exposed. Into this basket a mattress is put, and the patient laid on it; the lid is then tightly fixed on, which being scooped out at the top, leaves the patient's head free, and restrains him effectually. The second mode of restraint resembles Rush's *tranquilizer*. It consists of an arm-chair with a high back and a foot board. The arms, legs, feet, and body are fastened to this chair by strong and broad straps with buckles.

Our author found no *rotatory* machine in the Parisian hospitals; although Esquirol mentioned to him such a machine, as among his *pis desideris*; and calculated on considerable advantage from its employment—particularly in cases complicated with gastric irritation. Although the *rotatory* machine originated in England, there nevertheless exists, says Burrows, great prejudice against its employment in that country. That it may be used with manifest advantage in some cases, however, experience has fully demonstrated. In the report of the Glasgow institution for the year 1819, it is stated that rotatory motion was employed in a number of cases, and “in some of them with wonderful good effects.” It must be confessed, however, that according to the experience of some, very alarming consequences have resulted from rapid rotatory motion. *Warm bathing* is a cardinal remedy in the treatment of insanity in the Parisian hospitals. In the hospital *Salpêtrière*, the women use the warm bath two or three times every week, unless circumstances contra-indicating its use exist. They remain in the bath from a-half to two hours. In acute inflammatory mania cold water or ice is applied to the head while the patient is in the warm bath. Dubuisson, in conformity with the recommendation of Hill, and Cox, has applied æther to the head with advantage. This, however, should not be done in a small and close apartment as the evaporated æther will tend to excite the brain injuriously.

Bleeding, says our author, was for a long time practised to a pernicious extent in the treatment of mania. The old established *Traitment de l'Hôtel-Dieu*, consisted almost entirely of repeated blood-lettings, which, according to the assurances of Pinel, converted many a case into confirmed imbecility. At present venesection is practised but very rarely in the Salpêtrière. Our author, indeed, never saw a patient bled in this institution, although he visited it frequently and for a considerable period.

Esquirol does not carry his dislike to bleeding in mental diseases quite so far as Pinel. In certain acute cases he occasionally employs general blood-letting, though more commonly he prefers the application of leeches to the head.

Emetics are but seldom employed by Esquirol, and only when particularly indicated. Haslam is still more opposed to the use of this class of remedies, and censures, in no mild terms, Cox for recommending them. Drastic purgatives are not unfrequently administered in the Salpêtrière; and Esquirol is very fond of prescribing anthelmintics in large doses.

Blisters, searings, issues, and rubefacients, are but sparingly employed by the Parisian physicians in the treatment of insanity. Esquirol was at one time fond of applying moxa to the posterior part of the head in cases attended with great stupor, but he has discontinued the practice.

Of the *narcotic* remedies, Esquirol frequently prescribes a little laudanum when an anodyne is indicated. He never however gives this article with a view of its soporific effect; and observes that sleep is much more certainly and beneficially procured by keeping the patient engaged at some active employment during the day, than by opium.

Animal Magnetism was tried on eleven females, but without the least effect; and has never been attempted since.

Post Mortem Appearances.—Autopsic examinations are much more common in France than in any other country. Esquirol uniformly examines the bodies of those who die in his institution, and his examinations are always extensive and

complete. He never fails, for instance, to open the spine, and to examine carefully the spinal cord and its envelopes.

But what, after all, have we learned from such researches, concerning the nature and seat of insanity? Notwithstanding the zeal and industry with which examinations of this kind have been pursued, we know no more on these points now, than was known in the days of Hippocrates. Esquirol assured our author that he dissected the brains of more than twelve hundred subjects who had died of mania, and that he did not, in a single instance, discover any organic or structural alteration which is not found in subjects who never laboured under any mental disease whatever. Some very striking appearances were nevertheless observed in these examinations, which the author describes without entering into any speculations concerning their connexion with the previous disease of the mind. In almost every instance, says our author, Esquirol found the two hemispheres of the brain disproportionate in size. In a memoir, in which he mentions this circumstance, he calls it—“*le phénomène le plus constant et peut-être le plus digne d'attention,*” —the most constant phenomenon, and perhaps the most worthy of attention.* Georget examined Esquirols' collection of crania, and found that out of more than five hundred, nothing remarkable existed in the form of one-half of this number; but that in the remaining half of the collection, considerable deviations from the usual form and structure were found. Where there was a difference in the capacity of the two sides of the cranium; the *right* side was usually the largest. Only one-twentieth part of the crania examined were found to have unusually thick bones. More commonly the diploe of the cranial bones was wanting, so that they were very hard, compact, and shining like ivory.

In accordance with the observations of Haslam, Reil and others, Esquirol, in the majority of instances, found the brain

* Dict. des Sciences Med. Art. *Idiotisme.*

softer than it is in a natural state. Out of forty-four subjects who had died in a state of insanity, he found that in twenty-nine the brain was preternaturally soft; and in fifteen of a hard consistence. This, however, cannot be taken as the regular proportion in the relative frequency of these structural deviations. According to Georget, softening the brain is much more frequent than this estimate, from the dissections of Esquirol, would make it; and from the information obtained by our author, it appears, that at the Bethlem hospital only six brains out of thirty-seven were found to be preternaturally soft, whilst eleven were hardened; so that the relative frequency of the morbid deviations is not to be estimated by such statements.

In a melancholic subject who had died from voluntary starvation, Esquirol found the brain hard and of a violet colour, as if injected with violet coloured wax. Cabanis* give an account of a still more remarkable phenomenon. He states that he saw the brain of a maniacal subject brightly phosphorescent. Ossification in the *dura mater* is, according to the observations of Esquirol, no uncommon occurrence in the brains of insane subjects. Our author saw a considerable ossification of the arachnoid membrane of the spinal cord of a female who had been for many years insane. Esquirol observes, and the observation is peculiar to him, that in dissecting the brains of persons who had been insane, he invariably found a very firm adhesion of the lining membrane of the lateral ventricles, to the adjoining substance of the brain. In several instances Georget found the cerebellum totally disorganized.

Among the abnormal circumstances detected in the thorax and abdomen, Esquirol mentions one, in relation to the position of the *transverse* colon, of a very remarkable character. This portion of the intestinal tube, says he, is very often found sunk so low down as to pass into the pelvis, and fre-

* Des Rapports du Physique et du moral de l'homme, 1. p. 422.

quently to lie in a perpendicular instead of a transverse position. This unnatural position of the colon is most commonly found in persons who have laboured under melancholia. In one hundred and sixty-eight subjects who had died of melancholy, the following were the most prominent morbid appearances found on dissection: viz. Thickening of the membrane of the brain, 2; organic lesions of the brain, 4; ossification of the falx, 3; extravasation of blood with the cranium, 5; organic derangement of the lungs, 65; organic affections of the heart, 11; extravasations in the thorax, 6; perpendicular position of the colon, 33; adhesions and suppurations in the diaphragm, 5; ulceration of the stomach, 6; ulceration of the intestines, 7; worms, 5; tape-worm, 1; organic disease of the liver, 2; gall stones, 7; ulcers of the uterus, 6. With regard to the perpendicular position of the colon, which Esquirol regards as peculiar to persons labouring under insanity, it must be observed that Lawrence asserts, that instead of having found this position of the colon in the insane, he has seen it only in such as were never affected by any mental disease whatever. We perceive from these contradictory observations, how little reliance there is to be placed on the sweeping inferences which are so frequently drawn from *post mortem* appearances, in relation to the causes and connexions of diseases.

Having given a condensed but interesting account of the various objects which we have noticed, our author passes on to the description of the Parisian hospitals for the reception of lunatics, together with an account of the internal regulations, medical and economical, which belong to them respectively. He also, under this head, introduces short notices of the character and persons of the celebrated physicians who prescribe in these institutions.

Pinel was born on the 20th of April, 1745. He commenced his medical studies at Montpellier, where he remained from 1774 to 1778. He afterwards went to Paris, and devoted himself, for upwards of eleven years, to the study

of anatomy, zoology, chemistry and botany, during which period he was also zealously engaged in attending the clinical wards of the hospitals, and in making observations on the cases he there met with. In 1785 he translated Cullens' Nosological Classification, and in 1791 he was appointed physician to the hospital *Bicetre*. In 1794 he was transferred from this institution to the *Salpêtrière*, in which he afterwards presided as principal physician for more than twenty-eight years. When the French wish to hold up their brightest trophies in the field of surgery, they mention the name of *Desault*; when anatomy and physiology is the theme of their boast, they refer us, and justly too, to the genius of *Bichat*; and when nosology and psychological medicine are brought into question, the name of *Pinel* is mentioned with gratitude and triumph. It was he who first substituted the benevolent, soothing, and rational management of the insane, for the chains, stripes, and various other cruelties, which were formerly inflicted on those unfortunate beings, under the erroneous and revolting idea of chastising them into reason. Pinel was but little addicted to mere speculative or theoretical inquiry. His philosophy was that of Condillac. He professed to proceed from the simplest ideas—from data furnished to the mind by the senses—step by step, to the more complicated and abstract notions of things. Observation was to him the starting place; and the *Nosographie Philosophique*, evinces throughout, the observant, inductive and cultivated understanding of its author.

Esquirol was the friend and pupil of Pinel. What the latter began, the former is zealously engaged in completing. He is now in the meridian of life,—actuated by an uncommon zeal for the advancement of medical science—of firm character, amiable in disposition, of a clear and cultivated understanding, and, what is not very common with the French physicians, of extensive professional reading and learning.

Our author observes that the most important and interesting lectures he heard in Paris, were those of *Esquirol* on mental

diseases in the *Salpêtrière*. Every morning, at nine o'clock, he visits the hospital; and as this institution is located considerably beyond the suburbs, he is seldom followed by so numerous a crowd of students as to prevent those who feel an interest in this class of diseases from enjoying the full advantages of his instructive observations as he passes through the wards. "Here," says the author, "I often had occasion to witness the mutual affection which exists between this interesting physician and his patients, and the great and beneficial influence which this feeling had on the latter." On the ground floor Esquirol has a small study and a cabinet, in which, besides a small select library, he keeps his very interesting museum of preparations.

The three public institutions in Paris for maniacal subjects, contain on an average about two thousand lunatics, of these there are about eight hundred constantly under treatment; and one thousand two hundred retained merely to afford them an asylum. Besides these public hospitals, there are two private institutions dedicated to the same class of diseases, viz. the *Salpêtrière*, which, as we have already said, is under the direction of Esquirol, and another directly opposite to it, under the management of Dubuisson. E.

ART. II.—*The Anatomy of the Fœtal Brain, with a comparative exposition of its structure in Animals.* By FREDERIC TIEDEMANN, Prof. in the University of Heidelberg, Member of the Academy of Sciences of Munich and Berlin, &c. &c. Translated from the French of A. I. L. Jourdan. By WILLIAM BENNETT, M. D. To which are added, some late Observations on the Influence of the Sanguineous System over the developement of the Nervous System in general. Edinburgh.

OUR object in reviewing the present work, is by no means critical investigation. The nature of the work, and the character of the author, render it unnecessary and unprofitable. The volume exhibits a series of facts in relation to the most

interesting subject which, at present, occupies the attention of physiologists. The source from which they are derived confers upon them the character of valuable data. We propose, therefore, for the benefit of our readers, to condense into as small a compass as possible the record of facts which is here presented, and we are confident that if we accomplish our design in a manner worthy of the work, we shall not be reproached by those who would associate the *science* with the *art* of medicine, for having devoted a few pages to this subject. Physiology, or the science of life, is the only key to all rational knowledge of the nature and treatment of disease.

The practice of medicine, unless sustained by the intellectual exercise which the *science* of our profession furnishes, sinks into a mercenary trade, and the incurious follower of rules without reasons, differs as much from the intelligent practitioner, as does the unlearned mariner who *uses* his tables and nauticle instruments, from the astronomer who designs them.

In the practice of medicine, however, it is impossible that rules should exist adequate to every occasion, and whoever is ignorant of the principles from which they are drawn, will frequently find his chart to deceive him, and his compass to vary without any means of correcting the error.

Such has been the zeal and success with which human anatomy has been cultivated for many ages past, that there appears but little more to be done in relation to the structure and configuration of the organs which constitute the system. The several offices of many of them have also been studied with complete or partial success. No part of the human frame has been the subject of closer scrutiny than the brain; nothing which can be developed by the dissecting knife, the microscope, or chemical tests, has escaped observation; but although the important relation which its office evidently bears to other general functions has rendered it a subject of particular interest, yet little else has been accomplished than to determine the anatomical features of the organ, and to name

with scrupulous minuteness the several parts of which it consists.

We have indeed some confused notions of the general office performed by the organ, as a whole, but the functions performed by its several constituent parts in relation to each other are as yet wholly unknown to us. We are enabled, at once, to ascribe to the muscular walls of the heart, to its valves, and to its septa, the several offices which they perform, but no one presumes to designate the part which the corpus callosum, the fornix, the striata, or the thalami, contribute to the general functions of the sensorium. Neither are we able to determine the relation of the brain to the rest of the nervous system as we are that of the heart to the circulatory organs, nor the relation which the nervous system generally bears to the rest of the vital fabric with the same certainty that we can that of the vascular system to the same.

So important, however, is the influence which the nervous system exerts over other functions, that the probability is, we shall never be able to accomplish more in relation to the phenomena of life until the functions of the brain and its several parts are better understood. So aware are the physiologists and pathologists of the present day of this fact, that their intellectual efforts are all converging to this point. The experimental inquiries of Philip, Bell, Majendie, Brodie, and others, have already contributed facts which have given new interest to the investigation, and we have reason to believe that if the human mind has not already reached its limit on this subject, we are now on the eve of some momentous discovery, which, like that of the circulation of the blood, is to give a new character to the science of life. We have already observed, that the anatomy of the adult human brain can probably furnish but little more for the elucidation of this subject. Two fertile sources of information, however, remain, the cultivation of which has been reserved for modern physiologists. One of them is the comparative anatomy of this organ, a subject to which Gall and Spurzheim are paying particular

attention. It is obvious that by carefully observing the different degrees of developement of the nervous system, and its different organic modifications in the various orders of animals, and by carefully noting also the number and character of the functions corresponding to them, we shall be able to ascertain the influence which each particular part of the nervous system exerts by thus determining the vital phenomenon which is absent when a particular part of that system is not found, or is imperfectly developed. It is also obvious that the same results may be obtained by observing the order in which the constituent organs are developed in the growth of the fœtus, and the vital phenomena which correspond to them. For instance, it is easy to determine whether the nervous system be essential to the functions of the circulatory, by observing whether the former exists in all animals which possess the latter, or by ascertaining the order of their developement in the fœtal state. If the circulatory organs can be discerned performing their functions before any rudiment of the brain can be ascertained, then we have adequate reason to infer the negative.

In some forms of life no nervous system can be discerned. This is the case in the fœtus of the first month, in vegetables, and in some of the lower animals. By comparison then we can ascertain the general offices which it performs where it does exist, and by noting its successive degrees of developement from the lowest to the highest orders of animals, we may ascertain the part which is performed by such portions as are sometimes wanting.

It is obvious that a wide field is here opened for observation, and that the labours of those who enter upon it must be productive of utility. Of those who have as yet pursued this course, our author is one of the most industrious and successful. The work consists of two parts, one of which treats of the fœtal brain, and the other of the comparative anatomy of this organ. We commence with an abstract of the first:

Our author observes that during the first month of the
VOL. III.—E

fœtus no rudiment of the brain can be discerned, the cephalic and cervical swellings being perfectly transparent. On the fifth and sixth week after conception he found the head to have become voluminous, the rudiments of the extremities to exist, the canal of the heart filled with blood. The head and trunk, however, were nearly transparent; the former contained a rounded pouch which was continuous with a canal in the thorax, both being filled with a whitish and nearly diaphanous fluid. "In two embryos," he says, "it presented slight depressions, transverse and longitudinal, giving it the appearance of small vesicles agglomerated together." The author supposes this to be the nidus of the brain and spinal marrow, those organs being as yet not at all organized. The vesicles correspond to the natural divisions of the brain, and their cavities communicate freely with that of the spine. The parietes of these cavities, which are pretty firm, are evidently the rudiment of the pia mater, as the vessels of that membrane are soon discerned in it.

On the seventh and eighth week the head and trunk have lost their transparency, a whitish membrane is found adhering to the internal surface of the cranium, which is the dura mater, and beneath this, another membrane, the pia mater, containing vessels of extreme delicacy, and enveloping the rudiment of the brain, which was white and pulpy, and of the consistence of the white of an egg. By hardening the organ in alcohol the author was enabled to examine it more satisfactorily; he then discerned the dura mater nearly dividing the cavity of the cranium into two portions, the limit of which was the tentorium cerebelli. The pia mater adhered firmly to the brain and spinal marrow. The spinal marrow was *large* in proportion to the *brain* and to the embryo, and was of nearly uniform thickness. Behind it was marked by a longitudinal fissure, into which penetrated the pia mater, and the bottom of which was a canal occupying the whole length of the spinal marrow, and continuous with the fourth ventricle of the brain. The exterior surface of the canal was composed

of two cords, but without any appearance of fibrous structure. At its superior part, where continuous with the brain, it formed on either side a projection nearly one line in breadth, in front of which it bent forward to the brain, dilating to give origin to the fourth ventricle. On each side of this dilatation arose from the spinal marrow a fasciculus, which projected inward and rested in contact with that of the opposite side, forming an arch over the fourth ventricle. The spinal marrow then gave origin to the crura cerebri, and terminated by bending from below upward, and from before backward. In front of the cerebellum were seen the rudiments of the tubercula quadrigemina, the fourth ventricle was continuous between them, forming the aqueduct of Sylvius. Still before them were the rudiments of the optic chambers, and the third ventricle between them; they rested on the crura cerebri. Before these were eminences to become the corpora striata. A rudiment of the hemispheres existed in two membranes produced from the second pair of eminences. At this period no other parts of the brain could be discerned. The author thinks that nerves may have existed too delicate to be seen. The matter of the brain was *not fibrous* but composed of minute globules.

Third Month.—At this time there was discerned in a foetus prepared as before, the same fissure in the spinal marrow, expanding above to form the fourth ventricle, over which were stretched like an arch, the corpora restiformia, forming the rudiment of the cerebellum. The tubercula were still more developed, and the aqueduct of sylvius was large between them. The optic chambers, the corpora striata, and the rudiment of the hemispheres, a little more developed than the last. The spinal marrow was about one line and a-quarter in breadth in front of the fourth ventricle; the transverse diameter of the cerebellum was about three lines; the mass of the tubercula quadrigemina two lines in length, and one line and a-half in breadth; the length of the optic chambers was one line and a-half, and their breadth one line and three-fourths. The other parts of the brain, as the pons varolii, the corpus

callosum, fornix, cornua ammonis, commissures, &c. were not yet in existence.

The author next examined an embryo of eleven weeks, in which he found the falx and the tentorium formed, and the sinuses containing coagulated blood. The dura mater invested also the spinal marrow, but there was no trace of the arachnoid; the pia mater enveloped the whole. The spinal marrow was augmented where it is continuous with the brain. The same posterior groove existed terminating in the fourth ventricle; "hence," says the author, "it results, rigorously speaking, that the fourth ventricle is a simple dilatation of the canal of the spinal marrow. The spinal nerves existed at this time. In front and below, the spinal marrow was continuous with the crura cerebri; the pons varolii did not exist."

The following were the parts present in the encephalic mass; 1st. cerebellum; 2d. tubercula quadr. not covered by the hemispheres; 3d. hemispheres very small. On the inferior surface; 1st. crura cerebri; 2d. rudiment of the corpora mommilaria; 3d. pituitary gland very small; 4th. junction of the optic nerves; 5th. olfactory nerves; 6th. two hemispheres representing the anterior lobes, also the middle and anterior lobes but little developed.

On separating the optic chambers from each other there was brought into view the posterior commissure, and the third ventricle being a funnel-shaped cavity extending as far as the pituitary gland—no pineal gland nor pedicles.

The surface of the hemispheres was smooth; they evidently represented two membranous vesicles, the walls of which were scarcely one-fourth of a line in thickness. The lateral ventricles existed, and contained a very large choroid plexus, "which formed by a prolongation of the pia mater, flattened on itself, had passed over the optic chambers, and beneath the inferior edge of the membranous hemispheres."

In a fœtus of fourteen weeks, and which was two inches four lines in length from the summit of the head to the inferior extremity of the trunk, the dura mater was strong and

thick, pia mater obvious and very vascular; the arachnoid could not be discerned. The spinal marrow was very large in proportion to the brain; on its posterior surface was the same longitudinal groove, which advanced as far as the interior of the same canal; also a slight longitudinal groove on the anterior surface. Where it bends forward and expands to form the medulla oblongata, the corpora pyramidalia were discerned, no trace of the olivaria; in their place, however, on each side was a cord proceeding forward to gain the pons varolii, which rising from before backward gave origin to the cerebellum. These were the corpora restiformia. The spinal marrow was evidently fibrous. The two cords of the spinal marrow augmenting as they ascended divided into three fasciculi, the corpus restiforme on the outer side, the rudiment of the corpus olivare in the middle, and the pyramidale on the inside, continuous with the crura. The fibres of these last fasciculi were seen evidently to cross before forming the pyramidalia.

Viewed from above downward, the brain presented much the same appearance as in the last. On the inferior surface was the pons still very narrow, the crura cerebri, and in front the large masses corresponding to the mammillary eminences; the petuitary gland hollow and communicating with the third ventricle by the infundibulum; the optic chambers; the olfactory nerve; grooves separating the lobes; nerves coming off, as usual.

The fourth ventricle was seen of considerable size, communicating below with the canal of the spinal marrow, and above with the cavity of the tubercula; near the edge of the cords of the spinal marrow was seen a small eminence which is now regarded as the origin of the acoustic nerve.

The restiformia bending backward formed the cerebellum, sending some fibres to the pons varolii. Neither the hemispheres, nor processus vermiformis could be seen. In a perpendicular section of the cerebellum no part of the arbor vitæ could be seen. Where the restiformia penetrated, transverse

fibres existed, forming the pons and constituting the commissure. The transverse fibres in the pons covered those which were continued from the spinal marrow, and when the former were torn from the latter then were seen.

The fifth pair of nerves was traced from the border of the pons anteriorly across this body to its posterior part.

The valve of Vieussens was interposed between the fourth ventricle and the cavity of the tubercula. The posterior valve did not yet exist. The tubercula had begun to be covered by the hemispheres prolonged backward, the pineal gland was present and its stalks arising from the thalami. The corpus callosum was very small. Behind this from the floor of the third ventricle, arose two thin cords, the anterior pillars of the fornix, which proceeding upward united at the posterior part of the corpus callosum, and separating again wound round the thalami to the base of the posterior lobes of the hemispheres, these were the posterior pillars of the fornix, and they gave origin to the corpora fimbriata and the hippocampi.

The thalami rested on the crura of which they are enlargements; their commissure was not yet formed.

The hemispheres were membranous sacs, the cavities of which are the vast lateral ventricles, and the contents, the choroid plexus, very voluminous. These plexuses were prolongations of the pia mater, which penetrated into the ventricles between the superior surface of the thalami and band of the fornix. When the choroid plexus of the lateral ventricle was removed, there were observed the *c. striata* of their usual appearance; the cornua ammonis looking backward, outward, and downward, corresponding to the posterior pillars of the fornix. The anterior part of the cavity of the ventricle was continuous with the cavity of the olfactory nerve.

The distribution of the fibres of the cerebral substance was the next object of our author's attention, and is one of very considerable importance in relation to Gall and Spurzheim's

account of this organ. The two crura were evidently continued from the spinal marrow, and passing through the pons separated, proceeding forwards and upwards, sending fibres obliquely inwards and upward to unite with each other at the upper part of the tubercula. They then swelled to produce the optic chambers. Some fibres descended to the c. mammillaria. All the other fibres, which were very numerous, passed beneath the optic chambers and proceeded forwards and outwards, spread like the branches of a fan into the membranes of the hemispheres; they were then reflected inwards to form the superior wall or roof of the lateral ventricles, and then descended to gain the pillars of the fornix. By the union of some of them, this corpus callosum was produced. Those fibres which descended to the c. mammillaria, turned from behind forwards in these eminences, and ascended behind the corpus callosum in the form of the anterior pillars of the fornix, to terminate in the posterior pillars or cornua ammonis.

In a fœtus of the fifth month the author found the brain and spinal marrow well developed. The arachnoid membrane could not yet be seen; the pia mater was thick and vascular, adhering firmly to the brain. Entering between the optic chamber and pillar of the fornix, it formed the choroid plexus in the lateral ventricles. It also penetrated the fourth ventricle to form there a choroid plexus. It also covered the spinal marrow and entered its canal.

The spinal marrow was two inches five lines in length, and broadest where it expanded to form the fourth ventricle. The spinal nerves rose as usual on either side. The same canal as before existed, expanding wherever the spinal marrow was enlarged. The s. marrow itself was composed of two large cords, from which were produced backwards and inwards the thin plates, forming the posterior walls of the canal; above these plates opened backward, to form the calamus scriptorius, and still higher the fourth ventricle. It exhibited the three fasciculi as before, in the medulla the pyramidal fibres evidently crossing. The olivary cords extend-

ed in the same manner to join the crura cerebri; the restiformia proceeded downwards and backwards to form the cerebellum. For the first time the vermiform process was seen, and the division of the cerebellum into lateral hemispheres; on its surface were four transverse grooves dividing it into five distinct lobes seen in a perpendicular section, as also the five stems of Reil corresponding to them. There were no branches or leaves, however; the commissures of the cerebellum were evident. The fibres situated on the side of the corpora restiformia and which wound round the spinal marrow in front of which they united, formed the pons; from the anterior stem of the cerebellum the valve of V. extended to the tubercula. The tonsils (spinal lobules of Gordon,) the flocks of Mayo and the valve of Tarin, did not yet exist.

The hemispheres of the brain were smooth; they were considerably developed, but did not cover entirely the tubercula. On separating them were seen on their internal surfaces many commencing convolutions. The four eminences of the tubercula were not yet distinct.

The corpus callosum and fornix had not yet covered the thalami, the former existed in front, beneath which rose the anterior pillars of the fornix; in front of these was the anterior commissure uniting the c. striata. The two pillars sent upwards and forward two thin plates, which gaining the inferior surface of the corpus callosum gave origin to the septum lucidum. The third ventricle communicated with the ventricle of the septum, in front between the anterior pillars of the fornix. The crura were united together, and also to the corpus callosum, and winding round the thalami were lost in the cerebral mass. The tænia semicircularis was not yet formed between the striata and thalami. The corpus striatum rested on the crus cerebri. On opening the ventricle the radiation of the fibres of the crus cerebri was obvious.

A perpendicular section exposed the following. The spinal marrow augmented, contained a canal which communi-

cated with the fourth ventricle. The cords of the spinal marrow, the c. pyramidale, the cerebellum and its five stems, the valve of Vieussens arising from the first of them, the cavity of the tubercula much as in the last; thalami very voluminous; the crura of the fornix as in the last. The two optic nerves evidently rose from the unfibrous substance which formed a part of the surface of the tubercula quad.

The author next describes the brain of a fœtus of twenty-two weeks. In this the arachnoid was first seen.

The spinal marrow terminated by a filament extended as far as the os sacrum, and on its sides the spinal nerves descended to form the caudiform expansion. It was three lines broad where it formed the three fasciculi. On examining the two principal cords, the fasciculi were distinctly seen. The pyramidal fasciculus appeared as before. The corpora olivaria had not yet appeared on the olivary fasciculi, which traversed the pons varolii, and united with the crus cerebri; the restiform fasciculi passed backward into the cerebellum.

The hemispheres of the brain were now voluminous, smooth, and without convolutions, and nearly covering the whole of the cerebellum.

On the inferior surface the pons was large, marked with its longitudinal groove, and formed of transverse fibres. The mammillary eminences were at this time confounded together. Other parts presented the same appearance as before. On gently separating the hemispheres, the corpus callosum was seen not yet extending so far back as to cover the thalami and the third ventricle.

The cerebellum was nearly covered by the hemispheres of the brain. Its middle part, or vermiform process, was slightly sunk. On its superior surface were seen deep transverse grooves, and branches were developed on the stems, as appeared by the perpendicular section; the ascending portion of the crus cerebelli, the cerebral valve and the anterior peduncle destined to form the pons, had far advanced in development. The corpora dentata were present.

The fourth ventricle communicated with the canal of the spinal marrow by the beak of the calamus, and with the third ventricle by the aqueduct of Sylvius. The gray bands of Wenzell were seen on either side of the fourth ventricle. The common mass of the tubercula was partially separated by a longitudinal groove, and rested principally on the middle or olivary fasciculi of the spinal marrow, from which it received some fibres, which bending inwards united to those of the opposite side. These were much increased.

The commissure of the thalami did not yet exist. The optic nerves were traced to the tubercula and the thalami, where they formed a small eminence, the corpus geniculatum, which with the nerve was detached, free from all fibrous appearance.

The walls of the ventricles were found thicker, though the cavities were still large and oblong. The ventricle was completely filled by a voluminous choroid plexus. The hippocampus was a continuation of the posterior crura of the fornix. The corpus striatum wound around the crus cerebri at its exit from the optic chamber; tænia semicircularis did not yet exist. The fibres of the crura radiated in every direction into the hemispheres, some passing through the striata. They were then reflected inward to form the roof of the ventricles; the anterior and middle converged to meet the opposite in the corpus callosum. The posterior were confounded with the posterior pillar of the fornix, and formed the hippocampus major. The lateral ventricle could not be entered except at the opening under the fornix and tænia semicircularis, which gives a passage to the plexus. There were other fibres, which proceeding from the surface of these, where they were reflected, passed to the periphery; they are very distinctly seen in a vertical section of the walls of the hemispheres.

It appears that the hemispheres, at first thin and membranous, each month augment in thickness. This is effected in the following manner. The vessels of the pia mater separate

from the blood which they convey the new cerebral pulp. This pulp disposed in layers from within, outwards chrysalizes in the form of fibres, which are applied to the surface of those previously formed. This is proved by detaching the pia mater from the brain, when there are found layers more or less thick, of the cerebral pulp, adherent to the internal surface, showing that the exterior soft substance adheres still to the vessels. The layer of the cerebral substance adherent to the detached portions of the pia mater, and the superior layer of the brain divested of this covering, are both equally soft and free from all fibrous appearance. Examined by the microscope, they appear formed of very small globules. The cortical substance is not deposited till after birth, on the surface of the brain.

The fourth communicated with the third ventricle through the cavity of the tubercula, and the latter extended to the pituitary gland by the infundibulum, and to the c. mammillaria. From these latter rose the pillars of the fornix. The septum lucidum, course of the crura, anterior commissure, &c. &c. as before.

The foetus next examined, was one of twenty-seven weeks. The spinal marrow had anterior and posterior grooves. In the middle it was narrowest, and broader where the brachial and the lumbar nerves originated. The canal was less and lined with a thin layer of unfibrous substance, the c. pyramidalia; olivaria, and restiformia were distinct. The transverse diameter of the medulla oblongata was four lines and a-half at the upper part, where also it was broadest; the pyramidalia as before; the olivary fasciculi were covered with an olivary body; composed of unfibrous pulp covering the fibres which passed into the common mass of the tubercula. The external fasciculi or restiformia passed into the cerebellum. The cerebellum was completely covered by the hemispheres of the brain. The lobes described by Reil were completely separated by broad and deep grooves. Almost every part of the cerebellum named by authors could be seen. The cavity

of the organ was still of considerable capacity. The posterior border reflected inward, formed the posterior valve, prolonged on either side into a thin and flattened production. The corpora restiformia formed in the interior of each hemisphere the corpus dentatum, from which some fibres radiated into the stems and ramifications. From the same point other fibres were detached, which passing outwards and forwards, surrounded the olivary and pyramidal fasciculi, and united to form the pons varolii; some fibres coming from the c. dentatum penetrated the tubercula, and formed the ascending portion of the crus cerebelli.

A perpendicular section exposed the stems, the valve, the tubercula, &c. as before; branches and ramifications were present, but no leaflets. Hence the author infers that the cerebellum is developed from within outward.

The fourth ventricle was continuous with the aqueduct of Sylvius. On its floor were seen the gray bands of Wenzell, it had also a choroid plexus.

The brain was larger in proportion to the spinal marrow and cerebellum. The rudiments of convolutions were seen on its external surface; the fissure of Sylvius very deep, from which the olfactory nerve descended.

The crura of the brain, the mamillaria, the pituitary gland, were as before.

The corpus callosum, composed of transverse fibres, extended back as far as the optic chambers.

Within the ventricles the greater part of the contour of the medullary substance was still elevated much above the corpus callosum, while in its complete state of developement it is perfectly on a level with this body.

The lateral ventricle was completely filled with an enormous choroid plexus. The three cornua were developed. The hippocampus major and minor, c. fimbriatum, &c. &c. as before. The tubercula were completely developed. The aqueduct was contracted between the third and fourth ventricles. The tubercula were formed partly by the olivary

fasciculi, and partly by the crura cerebelli. On the lateral part of the anterior pair of the tubercula appeared the c. geniculatum externum, composed of unfibrous substance, and very vascular; the optic nerve was traced into this body, into the tubercles, and into the unfibrous substance; it is then from these three portions that it arises.

The middle commissures of the thalami did not yet exist; pineal gland, its crura, &c. as before.

The tænia semicircularis not yet existing. The two orders of radiating fibres were quite distinct, the one reflected to the corpus callosum, and the other extending to the periphery, and forming a layer over the first, the fibres were covered externally by a soft substance. A thin cord was seen descending from the inferior surface of the optic chambers into the mammillary eminences, where it turned and formed the crus of the fornix. The ventricle of the septum communicated with the third ventricle between the pillars of the fornix. The nerves were very voluminous in proportion to the brain.

The author next proceeds to describe the brain of a fœtus of thirty-four or thirty-five weeks. At this period the interior organization of the brain is complete, all its constituent parts being present, and no changes taking place after this period but in volume, and in the corticle periphery which is not yet developed.

The spinal canal still existed but much diminished by a soft substance on the interior walls; the fasciculi, the pons, &c. as before.

The cerebellum was perfect in form but the leaflets were not at all developed.

The two hemispheres of the brain covered the cerebellum and extend further back; they were every where traversed with furrows. The aqueduct of Sylvius was still more contracted. The pyramidal fasciculi issued from the pons larger than they entered, and diverged into the brain in the form of crura.

Fœtal brain of the ninth month.—The spinal marrow extended to the third lumbar vertebra, where it formed a caudiform expansion. The dorsal portion was something more than one line in breadth; at the origin of the crural and brachial nerves its diameter was three lines; that of the medulla oblongata five lines.

The canal of spinal marrow small; the three fasciculi as before. The cerebellum was one inch four lines in breadth; its longitudinal diameter six lines and a-half on the vermiform process, and nine lines on the hemispheres. The posterior notch very large. On its surfaces were numerous grooves, the deepest of which separated the lobes, others the fasciculi, and the shallowest the leaflets or plates. All the minute parts of the organ were developed.

The corpora restiformia gave origin to the rhomboid bodies, from which arose the medullary stems; and from each arose the crus cerebelli; the rhomboid bodies also gave origin to the superior peduncles, between which was the valve.

The brain was three inches four lines long, and two inches seven lines broad; furrows and convolutions distinct. The commissura mollis was formed.

It is impossible to establish a distinction between the cortical and medullary substance of any fœtal brain. Its component parts are formed of a homogeneous, reddish-white substance; this tint arises from its vascularity. The corpora striata in the fœtus are of a uniform rosy tint.

According to our author the arachnoid membrane, as described by Bichat, is a complete serous sack adhering to the dura mater, and reflected over the brain, following the nerves to where they pierce the dura mater, and then reflected, as is the interior lamina of the pericardium, over the vessels of the heart. It neither enters the convolutions of the brain nor the grooves of the cerebellum. The denticulated ligaments are folds of this membrane. Between the folds of each ligament is a fibrous filament which passes from the internal surface of the dura mater to the spinal marrow. All these

fibrous filaments descend on the lateral parts of the spinal marrow to the surface of the pia mater, between the anterior and posterior roots of the spinal nerves.

We shall review the remainder of this work, containing general considerations on the different parts of the brain, with a comparative view of their state in man and animals, for our next number.

ART. III.—*Further Observations on the Lateral, or Serpentine Curvature of the Spine, and on the Treatment of Contracted Limbs; with an inquiry into the effects of various exercises and other means which are used to prevent or cure these deformities; being a Supplement to the work on Distortions of the Spine and Bones of the Chest.* By JOHN SHAW, Surgeon and Lecturer on Anatomy. London, 1825. Octavo, pp. 196.

MR. SHAW is perfectly right in his assertion that in relation to diseases of the spine “many important points are still undetermined.” We are certain from our own observations that the mass of our professional brethren are far better acquainted with most other departments of surgery, than with this, which is daily becoming of more importance to the inhabitants of our country. Distortions of the spine, from whatever cause they may originate, or with whatever condition of the parts they may be associated, are almost uniformly treated on the same principles. We have frequently been called upon to observe the unfortunate cases of young females and children who had been tortured and enfeebled for months by issues, low diet and close confinement, when nothing but general debility, or a relaxed condition of the vertebral muscles and ligaments existed. The fact is, Mr. Pott’s observations on that kind of distortion which arises from caries have been generally read in this country; and few practitioners have thought it worth their while to inquire more particularly into the nature of the va-

rious affections of the spine,—all of which they appear to consider as one, and the same kind of disease.

It has always been to us, however, a matter of surprise that any observer could ever confound appearances of so directly opposite a character with each other; and still more, that after persevering awhile in an improper course of treatment, the ill consequences of which could hardly have escaped detection, some degree of inquiry should not have been instituted into the causes of such a circumstance. In our own practice we have always been able to decide at first sight respecting the nature of each individual case. That kind of curvature which results from caries, is always marked by a sudden or angular distortion, and the trunk is almost always thrown directly forwards in consequence of the bodies of one or more of the vertebræ being destroyed by the caries. Sometimes, however, although but very rarely, the caries begins in the transverse and articulating processes, in consequence of which the direction of the curvature is lateral. We have as yet only seen one case of this latter kind of caries, and then the suddenness of the distortion taken in connexion with the other symptoms, rendered its nature at once evident. Now all those kinds of distortion of the spine which do not proceed from caries, are characterized by a real *curvature* of the most distorted part, in which no angular or sudden deviation from the natural direction can be discovered. The distortion is, moreover, almost universally from side to side; and as two or more curvatures can be distinctly detected in different parts of the whole column, that contorted appearance, to designate which the term *serpentine* has been used by Mr. Shaw, is produced. We should observe, however, that in some few instances we have seen real curvatures of the spine looking anteriorly and posteriorly, so as to distort the trunk from before backwards, and vice versa. We have now a little girl under our care whose shoulders are thrown backwards so much by a posterior concavity of the spine, as to be approximated within a few inches to the sacrum whenever she attempts to stand, or walk.

We have also in mind two cases of the opposite curve, in which the back is exceedingly convex, and the sternum is nearly approximated to the symphysis of the pubes. But no difficulty has ever been experienced by us in distinguishing such cases. Independent of the broken-backed appearance which is peculiar to the distortion from caries, there are other and still more striking characteristics, which it may not prove amiss in us to notice.

In caries of the spine there is always a tenderness, and often severe pain, under the excitement both of motion and of pressure. During the life of the patient, heat, swelling, and redness, are sometimes present in the surrounding soft parts; and on a *post mortem* examination all the signs of vascular engorgement are exhibited in the affected vertebræ and their included membranes and nerves. Abscesses frequently form, in consequence of the discharge from the carious surface infiltrating into the cellular tissue; and as these are generally carried by gravitation to dependant and remote parts, so as to produce inguinal or femoral swellings, their connexion with the caries is sometimes overlooked by practitioners. The most striking characteristic of this kind of disease, however, is the peculiar paralytic affection of the lower extremities, which Mr. Pott rightly attributed to the vascular engorgement and inflammatory irritation of that portion of the spinal marrow included within the affected vertebræ. It cannot proceed from simple pressure on the spinal cord, because it is wholly unlike the common kind of palsy that is produced by that cause. It is marked by a rigidity instead of a relaxation of the muscles, and is evidently of a neuralgic character, such as we know can only proceed from some cause of irritation in the nervous system. There is, moreover, another strong reason why we should not attribute this symptom to the mere distortion of the spine, *i. e.* in all those kinds of distortion which are not accompanied by inflammation or caries; no matter how great the distortion may be, there is never any actual paralysis of the extremities.

For the purpose of still further contra-distinguishing the simple distortions of the spine from the disease characterized by the above circumstances, we need only observe that they are not necessarily accompanied by pain, and even tenderness, under pressure; nor does motion or exercise of any kind ever prove injurious, except when carried to excess. Abscesses do not form in connexion with such curvatures; nor does paralysis ever take place in the inferior extremities. The hectic irritation, which is always present in the last stage of caries, is also wanting in all cases of simple distortion. In short, every material circumstance is so different in these diseases, that a man with his senses about him can hardly be led into a mistake, provided he takes the trouble of attending to the above diagnostic signs, and of making only a superficial examination.

As to the general principles which should govern us in the treatment of these affections, we can hardly conceive how so much diversity of opinion could ever have obtained. It is an unpleasant truth to be obliged to tell, however, that there are almost as many modes of treatment as there are practitioners to put them in execution. Some, as we have already observed, treat all kinds of distortion of the spine on the same principles which Pott laid down for the management of caries. Others confine their patients rigidly to the horizontal posture, for many months together; while many depend wholly on the use of machinery and artificial supports. In some places starvation and drastic cathartics have got into fashion; while in others a full diet, and a liberal use of tonics and corroborants are in as great request. Active exercise, and frictions are extolled by some practitioners; and many place their confidence in alteratives, a careful attention to diet, and frequent alternations of rest, with varied exercise. Almost every possible mode of exercising, as well as of supporting, the muscles of the spine, has been resorted to. Slings have been worn on every side; weights have been carried on the top of the head and on the shoulders, before and behind; and, on opposite principles, splints, stays, and compressers of all sorts, steel springs and bandage-caps, Le Vacher's machinery, with

various modifications, and rolling chairs, have all been employed by different individuals with the same pretensions to success. But this enumeration does not comprehend even the one-half of the whole list of remedies and preventatives which might be mentioned. A large number of empyrical contrivances and panaceas, and a curious variety of domestic practices, are still in use among the wise people of merry old England, as well as in this country.

We presume it will not be required of us to undertake to demonstrate the absurdity of most of these different modes of treatment. It will no doubt be recollected that, as in other extensive groupes of diseases in which the individuals resemble each other only in some striking external characteristics, quite dissimilar, and very opposite kinds of remedies will often be required for the cure of particular cases that differ from each other essentially in their proximate causes and constitutional peculiarities.

Although Mr. Shaw's attention has been wholly confined to such distortions of the spine as are unaccompanied by caries, we have judged it necessary to give this general sketch, as preliminary to an immediate analysis of his work, on account of the confusion which, as we have already observed, has generally prevailed in the minds of practitioners in regard to this interesting subject. As will be perceived from the title, Mr. Shaw has heretofore published on the same subject. We regret that we have not been able to procure his former work; indeed we cannot ascertain whether it has ever arrived in this country. The following extract from the preface will, however, give some idea of its nature.

“The work to which this is a supplement is comprised in an octavo and a folio volume. In the first I have endeavoured, by entering fully into the pathology of the spine, to demonstrate certain effects of distortion, and to prove that the *lateral curvature* does not depend so often on a specific or constitutional disease, as upon causes which may be counteracted. The method of treating each variety of distortion is particularly described.

“In the folio, which contains thirty-four figures, with full explanations, there are engravings of thirteen specimens, exhibiting so many varieties of curvature of the spine. To these are added sketches from the living body, in illustration of the causes and of the changes produced in form by the different degrees of distortion, with etchings to explain the various mechanical contrivances which have been found useful in their treatment.”

Whether the author paid any attention or not in his former volumes to those distortions which arise from rickets, molities ossium, scrofula, &c. we do not know. In the present supplement, however, he discusses such circumstances only as are connected with simple distortion from relaxation of the muscles and ligaments of the spine. This variety of the disease occurs most frequently in young girls who have been brought up within doors, and in a delicate and restrained manner. The first symptom by which the attention of the parents is called to the case, is an apparent inequality in the size and shape of the shoulders. The breasts are also rendered unequal when the disease occurs about the age of puberty, and the hips always appear more or less deformed. The shoulders and hips which are on the opposite sides of the body are similarly affected, so that if the right shoulder projects the left hip will certainly appear to be enlarged. The right shoulder, according to our author, is most frequently enlarged; and when the scapulas are compared with each other in such cases, the right is generally found farther removed from the spine than the left, with its inferior angle lying flat upon the ribs, while that of the left projects. The loins are also always curved on the opposite side, so as to produce the following appearances:

“When a girl so affected is in certain positions, one leg appears shorter than the other; when she walks, there is not only a constrained position of the head and neck, and an inclination to one side, but there is also an inequality in the step, so that

the body is carried obliquely forwards, or with one side rather more advanced than the other. It may be frequently observed, that girls in this condition have a habit of putting one arm behind the back, and taking hold of the inside of the other elbow, thus assisting to balance the figure by pulling down one shoulder and elevating the other.

“If the back be examined, the spine will be found curved nearly in the form of the Italic *f*, and perhaps with a slight bend outwards, which will be most observable in the loins, and especially when she is sitting. The whole of the right side will be of a rounded and barrel-like form, while the left is diminished and contracted, the ribs being closer together than is natural. There will also be a depression or sinking in of the right, and a fulness between the ribs and hip of the left side, so that the whole space between the left hip and arm-pit is nearly in the same line, and considerably shorter than the space between the same points on the right side. If the girl hold both arms above her head, the difference in the shape of the two sides will be more distinctly marked; and when the arms are brought down close to the sides, we may see between the left side and arm, but not between the corresponding parts on the right.

“In consequence of the alteration in the state of the shoulders being the first symptom of deformity observed, it is generally, but erroneously, supposed that the dorsal part of the spine is the first distorted. Indeed those who have lately written on this subject have fallen into this error, and have described the curve at the loins as the last which is formed. In cases of *diseased* vertebræ there may be a curve only between the shoulders, but it invariably happens, in the common lateral curvature, that where one shoulder is protruded, there is also a curve at the loins; and I have shown by diagrams in the preceding volumes, that this curve is not only the first formed, but that those in the upper part of the spine are consequent upon it. When the practitioner, under the idea that the dorsal part is the first affected, directs his attention principally to it, he is apt to neglect the root of the evil; for as the upper curves are the consequences of the lower, it almost necessarily follows that if the lumbar part can be made straight, the dorsal and cervical verte-

bræ must also become so; if they did not, the head would be carried to one side. By taking this view of the formation of distortion, I was led to attend more to the means of remedying the curve at the loins than that at the shoulders, and I have found by experience that I was practically right; for the only instances where the amendment of the curve between the shoulders has not followed the removal of the bend at the loins, have been where the upper ribs were much misshapen, or where ankylosis had taken place between two or three of the dorsal vertebræ; but even in those cases, the curve which remained between the shoulders has been so short and so acute as to have little effect on the general figure. It is the curve at the loins, much more than higher up, which gives the peculiar appearance to girls who are distorted; for, as this curve is near the base of the column, it throws all the parts above out of their natural line, and also affects the motions of the legs, as the great muscles which rotate and move the thighs forward rise from this part of the spine. This is probably the cause why girls who are only slightly distorted, generally turn one toe out, and the other in, while walking or running.

“The above description will be found to correspond with the condition of the spine and ribs when the distortion is very slight; but a little increase in the curvature of the spine produces a considerable change in the general appearance. The effect is most remarkable in the alteration of the position of the right scapula; for this bone, instead of being farther removed by the increase of the curve, is brought nearer to the spine; and hence, although the right shoulder be higher than the left, it is not now so broad. But there is considerable variety in the state of the shoulders, even in cases of slight distortion:—In some instances, the lower angle of the right scapula projects, so that the hand may be put between it and the ribs, while in other cases the scapula clings close to the ribs, and gives a roundness instead of a flattened appearance to the shoulder.”

Some interesting facts in relation to the appearance of the muscles of the spine, are detailed in the subsequent pages of the first chapter. The change in the relative position of the

transverse processes will of course affect the situation of all the muscles which are inserted into them; and thus great inequalities in the apparent size of the opposite sides of the back be produced. In the usual kind of distortions, *i. e.* when the right shoulder projects, the muscles in the left loin being raised, or projected, give it a swollen appearance, while those on the right side being depressed, leave a hollow. The muscles on each side of the cervical vertebræ are exactly in the reverse condition, as the twist of the spine on its axis is there in the opposite direction. Machine-makers mistake these apparent swellings of the muscles for tumours, and endeavour to repress them by springs and compresses. Mr. Shaw relates a case where a practitioner also once made the same mistake, and undertook to disperse the imaginary tumours by bleeding and blistering.

These appearances of muscular swellings have been referred to an actual increase of substance, by those who consider distortion of the spine to depend on an irregular action of the muscles. The absolute and permanent shortening which some of the muscles in such cases undergo, is also referred by the same pathologists to the unequal contraction, by which the distortion is supposed to be produced. Mr. Shaw, however, does not conceive this to be the effect of contraction, but of an accommodation of the muscles to the altered shape of the skeleton. "The muscles do not *produce* the distortion, but become altered in form *in consequence* of the distortion." He thinks that the idea that the muscles on the concave side of a curvature are more powerful, and more contractile than those on the convex part of the curve, has originated from the consequences of distortion having been mistaken for the cause. He asserts that he has proven in the former volume that the muscles on the concave side are not the strongest; and that, therefore, there is no foundation in the doctrine which he combats.

He contradicts the idea, too often expressed by surgeons of eminence, that this affection is of little consequence, and

that if the general state of health be attended to, a girl may *outgrow* such a distortion. "It must indeed be obvious to all who have attended to the subject, that if the disposition to curvature be not counteracted in a girl growing at the rate of an inch in two or three months, the new growth, instead of adding to the height, will only add to the degree of distortion." "A spine slightly distorted in a growing girl, may be made straight; but if it be neglected (however great may be the attention to the state of the health) the curve will become rapidly worse; and if it be permitted to increase to such a degree as to render the ribs angular, it is very doubtful whether a perfect restoration of the form can ever be effected."

As to the proximate cause of this distortion, Mr. Shaw does not appear to locate it in the bones, any more than in the muscles: at least he does not attribute it to any constitutional vice, or organic derangement of the solids. He seems to believe that it generally originates from a habit of standing, or of supporting the chief weight of the body on one leg, which is a natural position of ease, and gradually produces a slight curve at the loins. Sitting at the writing-desk with the body twisted, and one shoulder elevated; sleeping on one side in a feather bed; playing on the piano, and especially at the harp, all contribute, also, to the production of this disease. It is not to the position of the shoulders, however, that he imputes the mischievous consequences of such postures. "The more I see of this serpentine curvature of the spine, the more I am convinced, that although the distortion will be always much increased, and occasionally produced by certain positions, it is generally caused in the first instance *by the yielding of the lumbar portion of the spine to the superincumbent weight.*"

Mr. Shaw does not think that this kind of distortion is caused either by bad health, or any peculiarity of constitution. He thinks that its frequent occurrence among girls who scarcely ever had a day's illness, is strong evidence of this.

He also adduces the fact, that although the poor in large towns are subject to various diseases of the spine, yet in that class the description of lateral curvature, which is so frequent among young ladies, is rarely seen; and when it does occur among the poor it is generally accompanied with some acute disease of the vertebræ, or is, to a great extent, combined with rickets or scrofula.

“ One of the most important and difficult questions in practice, is to distinguish between the cases where a scrofulous taint in the constitution is the predisposing cause of distortion, and those in which the curvature of the spine is solely owing to fortuitous circumstances. I hope to be able to show that much good may be done in both description of cases; but if the distinction between them is not made we shall be frequently mistaken in our prognosis.”

This kind of distortion rarely, if ever, occurs among the females of warm climates, where the clothing is always worn loose, and the figure is never confined by stays, or other mechanical contrivances. Mr. Shaw thinks that this exemption cannot arise from the effects of the climate merely, because in cold as well as in temperate latitudes, the lower orders of females are also exempt from the disease. Nor can it proceed from the circumstance that children are not in the habit of taking severe exercise in hot countries, because the romping and industrious girls in the country are not more liable to distortion. The most probable explanation is, that they are not subjected to the same restraints and discipline as the females of Great Britain and this country. They are permitted to indulge more in the recumbent posture, they spend less time in sitting and standing, and while young, are not obliged to act so much in opposition to the feelings natural to their age as our females are, in the acquirement of what we call accomplishments. In preventing deformity, the great secret appears to be, as far as we can gather it from the volume before us, to regulate with particular care the states of

exercise and of rest, so as to preserve the proper balance between them. At the same time it is especially necessary to take care that the condition of rest, or relaxation, shall not be indulged in by remaining either in an erect or twisted posture.

The following extract elucidates Mr. Shaw's views so clearly, that we give it entire:

“As long as a child continues in a state of nature, that is, while it is permitted to run freely about, and before it arrives at that age when the parent is induced to pay particular attention to its figure, the form is fine and perfect; but about the age of nine or ten, what may often be truly called its miseries, commence. Education is seriously begun, and the girl is no longer permitted to indulge in that playfulness which is not objected to in boys; indeed, it often happens that the first lesson a young lady receives, is an admonition that she is not a boy: when she walks, or when she sits, particular attention is paid to her manner, and the point most generally insisted on is, that she shall keep herself quite erect. For this purpose, or to give the chest a certain form, she is incased in a pair of stiff stays. Girls are thus early put under restraints not natural to their age. This, in some degree, renders them artificial, which is increased by the restrictions which are unavoidable in the acquirement of certain necessary accomplishments.

“If such habits be unnatural to the time of life, we cannot wonder that there should be a deviation from the natural growth of parts. It is not extraordinary that a child has its bowels disordered when its natural diet is changed; but we are apt to think it strange that the figure should not continue to grow as well *when we take great care of it*, as when the child was romping, and when no attention whatever was paid to its form. To set the bowels right, a variety of family recipes are often given, while the diet is neglected; but they are as ineffectual in restoring the natural tone of the digestive organs, as the staymaker's contrivances are in mending the shape. In both instances we endeavour to overcome nature, or to set it right, by artifices, and often by artifices that are ill calculated for the purpose.

“Perhaps the reader is now prepared to admit the following view of the causes of the common slight curvature, when it occurs in a girl who, although not of a bad constitution, is listless, easily fatigued, and unwilling to take active exercise. The first cause which I would assign is the want of sufficient general exercise, and especially of that which acts more immediately on the muscles of the back; the second, on the almost necessary yielding of the lumbar portion of the spine to the weight of the upper part of the body, if the girl be allowed to sit at work, or practise at the piano-forte for hours without any artificial support; the third cause I would name is the habit of lounging or balancing the body on one leg; the fourth, the habit of sitting awry while writing or drawing; the fifth, the habit of sleeping on a soft bed and with a high pillow; the sixth, the more frequent use of the right than of the left arm; and, lastly, I would assign as a cause of curvature most of the attempts that are made to correct the figure or to model it into a certain form. As so many of the means employed for this purpose, and for counteracting what are considered the disposing causes to distortion, frequently increase, and even produce the curvature, it may be useful to endeavour to exhibit these effects. I am therefore confident, that to those who are interested in this inquiry, no apology is necessary for going, at some length, into the consideration of the *use of the inclined plane; of the utility of stays and similar contrivances; of the manner of sitting; of the means generally employed with the intention of preventing or curing a stoop; and of the effects which certain exercises produce on the form.*”

On the use, or rather abuse, of the inclined plane, our author makes some valuable observations. It has now become a fashionable practice in England, not only to confine patients afflicted with every kind of spinal disease to the horizontal posture, but also to resort to the same plan as a means of prevention. A beautiful English lady informed the writer of this article, some months since, that she had been brought up in a boarding school where sixty young girls were forced to lie with herself six hours every day on the hard floor, for the

purpose of keeping the back straight and improving the figure. We need not say that Mr. Shaw deprecates this abominable practice as exceedingly absurd and injurious. Instead of preventing, he asserts that it increases the liability to this disease, and reason and common sense must concur in the same conclusion.

However useful the horizontal posture may be in such cases of distortion of the spine as are attended with scrofulous derangement of its organic structure, or with any species of inflammation, our author insists that it always proves injurious to the true serpentine curvature, when it is persisted in for any length of time.

“The practice of laying a patient on the back and in an inclined or horizontal position for months, and even for years, which has of late prevailed, as a method of cure for all kinds of curvature of the spine, and more particularly the lateral, has been founded on the idea, that the distortion depends on an undue contraction of certain muscles of the spine, and on a diseased state of the vertebræ. Taking this view of the cause of distortion, it was imagined that by keeping a patient constantly at rest on an inclined or horizontal plane, the irritation proceeding from the supposed disease of the bones would be relieved; and the muscles of both sides being kept in a state of quietude, would be gradually reduced to the same standard of strength, so that in a certain time the equilibrium in their actions would be restored. But the ideas on which this mode of treatment has been founded are completely erroneous, and there are numerous facts to prove that when put into practice it has completely failed. Is it not surprising that keeping the body in one position should have been proposed as the best method of curing a defect in the spine after the admission that the distortion is frequently consequent on weakness, and that if any part of the body be allowed to lie unexercised, that it becomes deteriorated? for this plan is, of all others, the most effectual in rendering the body weak, and in preventing those muscles on which the support of the spine depends from performing their natural functions. The bad effects of such a method of treatment

are gradually becoming evident, and the use of the inclined plane is quickly falling into disrepute; for even where it at first seems to be useful (as in cases of slight distortion attended with great debility,) it is found that although the girl may, perhaps, become straighter after having been confined to the horizontal position for months, she does not after a time gain strength, but on the contrary becomes so weak as to be scarcely able to walk or stand; and when she attempts to sit up without some artificial support, she sinks almost double, or, at least, into a state worse than she was in when she first lay down."

Four interesting cases are detailed, in which the ill effects of this plan of treatment are forcibly illustrated. The first case is that of the daughter of a country gentleman, fifteen years of age, who had been confined two years on her back. Her ribs had become distorted "to an extraordinary degree," her spine was very crooked, and she was so weak as to faint even in the sitting posture. "It appeared that her debility was the effect of confinement, and not of disease, for having put her on an entirely different plan of treatment, she became, in *the course of a few weeks*, as robust and as active as any girl of her age.

The other three cases are so interesting that we will insert them entire.

"The second instance was the daughter of a gentleman in a neighbouring county. From the history given by her mother, I learned that she had at first merely the slight lateral curvature, which should not have confined her to her couch for a day. When I saw her she had lain on her back on the plane for eighteen months: she could with some difficulty walk across the room, but could not stand without being supported. The spine appeared only a little distorted while she lay on her face, but it became completely curved when she stood up, and the ribs were more compressed than we find them in cases where this practice has not been pursued, so that I have no hesitation in asserting, that the distortion in this instance was also much increased by the confinement to the plane.

“This young lady had all the appearance of full health, and of being strong, but the appearance was deceptive, for it was produced by fat, not by healthy and vigorous muscle, as might be proved by taking hold of her arms, and still more by the tottering manner in which she moved when raised from her couch.

“That this debility was, as in the last case, the effect of the confinement and not of any disease, may be inferred from the following circumstance:--

“After a consultation on the state of her spine, her father went into another room to hear the opinions of the surgeons. On coming back he found his daughter skipping about the room, dancing the steps of a quadrille. ‘O, papa,’ says she, ‘I know I am to be laid on my back for two years, so I am taking my last quadrille.’ This shows that there was not at first any disease, nor even any tenderness of the vertebræ, which should have required rest; and yet this fine girl was not only condemned to lie on the plane for a year and a-half, but her spine was even repeatedly blistered to remove a supposed disease of the vertebræ. I need not enter into a description of the plan of treatment which was followed by this young lady, as it was nearly the same as that described in the chapter on the mode of treating confirmed lateral curvature. By pursuing the system steadily, she quickly acquired strength, and her figure was in a few months so much improved, that her father, on coming to town to see her, could scarcely discover any distortion.

“The subject of the third case was a gentleman who was more than twenty years of age, and had been suffering from distortion for nearly twelve years. From the advice he had received, he had so completely confined himself to his couch, that he had scarcely left it five minutes, at any one time, during several months preceding my visit, (he even slept on it,) and for several years he had never risen from it, unless he was at the same time supported by one of the collars that are used by Mr. Chesher. When I first saw him, he could not raise himself to receive me, and on begging him to show me how long he could support himself in the sitting posture, he made the attempt, but could not continue in it above half a minute, without suffering from a dreadful sense of suffocation. While he lay on his face,

the lumbar part of his spine appeared straight, but it became twisted the moment he attempted to sit up. I immediately changed the plan of treatment, during the course of which some very curious phenomena, with regard to the action of certain muscles, occurred: these I have endeavoured to explain in the chapter on the means of remedying stooping. The system pursued was so successful in restoring strength, that in the course of a few months, this gentleman, who had been confined to his couch or encased in iron instruments for nearly half his life, was enabled to rise, to throw aside all his artificial supports, and to partake of the amusements both of town and country.

“The fourth instance is particularly interesting and important, as illustrating the danger of erroneous theories when they are supported by the authority of eminent men. The patient was the daughter of a country banker, and nearly related to some of the highest medical authorities in England. From the history given to me by her mother, I concluded that her spine had been at first affected nearly in the same manner as those of some delicate children, and which by proper management may almost always be remedied. But, unfortunately for this young lady, as soon as it was discovered that her spine was distorted, she was laid on her back; and, notwithstanding a confinement to the plane for years, or, I should rather say, in consequence of this confinement, the curvature of the spine became gradually worse, and, when I saw it, was almost irremediable.

“Although her parents had observed an obvious difference for the worse, when the spine was examined from time to time, they were induced to persevere on finding that the plan was approved of by some of the most eminent men in the profession, and on being flattered by repeated assurances held out to them, as I have known held out to others, that their daughter would get up in a few months quite recovered. But often as this promise has been made, I believe it was never yet fulfilled in a case of common lateral curvature; and in support of this assertion I have the authority of one whose opportunities of seeing such cases have certainly been greater than those of any other man. I allude to Sir Astley Cooper, who told me, while in consultation

on the case of this young lady, that he did not know a single instance of a girl being cured by that mode of treatment."

Notwithstanding the general opinion that the change which the constitution undergoes at the age of puberty, will arrest the progress of this disease, Mr. Shaw asserts that distortion of the spine often increases after the age of twenty-one. Of course the hope which parents are apt to indulge, that the spine will become fixed at that age to the entire check of the disease, is altogether fallacious; and nothing but an immediate attention to the condition and habits of the patient can ensure a fortunate result.

Our readers are by this time no doubt anxious to inquire what the treatment is which Mr. Shaw recommends, and has practised so successfully. There is no particular or connected account of it given in the volume before us, but as far as we can gather his meaning from detached expressions, it consists in avoiding the injurious habits and practices above detailed, and improving the tone of the muscular system by frictions, and appropriate exercises, and above all, by alternating the exercise, with short and frequent periods of rest, in the horizontal posture. He prefers a mattress, or sofa, to the inclined plane or board, for the purpose of resting, at occasional intervals of from half an hour to an hour each, as the sensation of fatigue on the part of the patient may require. The inclined plane is useful only so far as it supplies rest and support to the body. It is much better, therefore, to cover it with cushions, or a mattress, that a girl may, by reclining on it, be really at rest after a long and weary lesson or fatiguing walk.

Our author makes some very excellent observations on pains of the back, considered as a symptom of spinal disease. Practitioners too often mistake the pains from debility for the effects of inflammation of the bones and ligaments. Acute pains are occasionally produced from the mere pressure of distorted bones on the nerves or viscera, which are also some-

times mistaken for the same affection. The following extract will illustrate the importance of attending to these circumstances.

“I have seen several patients who had suffered severely from the nature and cause of the pain having been mistaken. A young lady was confined to the horizontal position nearly a year, and repeatedly blistered, because a weary and dull pain in the lumbar part of the spine had been considered symptomatic of a commencing disease of the bones: how long she might have been kept in that position is scarcely possible to imagine, for as, at the end of four months, she felt the same pain when she attempted to walk, it was supposed that the inflammation was not subdued, and she was accordingly ordered to submit six months longer; and even at the expiration of that time, matters being still in the same state, she was laid a third time on the board. Soon after this I saw her, and having learned the history of her case, and made a careful examination of her spine, I was so much satisfied of there never having been any disease of the vertebræ, that although the same pain was felt when she sat up, I put her on a plan of treatment very different from what had been pursued. In the course of a short time the pain ceased, and she became rapidly strong, and improved in appearance. But, notwithstanding the issue of this case, it would be a more serious error to mistake the pain consequent on inflammation of the bones for that which is usually attendant on lateral distortion. When the vertebræ are actually diseased there is generally a train of symptoms, in addition to the pain, which will assist us in discovering the nature of the case. It is, however, sometimes difficult to determine whether the pain is merely the effect of weakness, or of a slight inflammation; and this difficulty I have found principally to present itself in cases of distortion in boys; for as they are so little exposed to the causes which produce distortion in girls, we are led to suspect that those who become crooked have a peculiar weakness in their osseous system, and therefore that their vertebræ may be more than usually liable to the scrofulous inflammation.”

From the tenor of our author's observations, as we have thus far detailed them, it will be concluded that he is of course opposed to the use of stays and all other mechanical contrivances, which prevent the action of the muscles of the spine, or obstruct the motions of the body. He does not think, however, that they should be left off suddenly and altogether, after a young female has been accustomed to their use a long while. The consequences of such a procedure would certainly prove injurious in every case, as the back would immediately yield under the superincumbent weight. The apparatus, of whatever kind it may be, should at first be slightly loosened, and afterwards be applied more and more lightly, until the muscles have gradually recovered their powers. In some cases it is even necessary to make the stays more stiff, and to lace them more tightly than before for the purpose of supporting the body. But this should only be done after a long sickness, and continued no longer than until the muscles have begun to recover their powers.

The following observations on the practice of wearing stays are very sensible:

“But notwithstanding the consequences of depriving any part of the body of the power of performing its natural functions, parents do not hesitate to swathe and put into the most complete bondage, children of a more advanced age; for what are stays but bandages? However, as all the arguments that have been employed against the use of stays, and the proofs that have been given of their bad effects, will not prevent their being worn, our efforts must be directed towards rendering them as harmless as possible.

“As even fashion does not require that a child should look otherwise than nature made it, there can be no necessity for putting a girl into stays before she is ten or twelve years of age; when stays must be put on, they should be loosely laced, for the tighter they are, the more do they act as compressing bandages, which not only prevent the natural play of the muscles,

and thus weaken them, but even waste and lessen their size. That such may be the effect of pressure is often seen in the wasted leg of the mendicant, which, through tight bandaging alone, can be reduced to that condition which excites our commiseration.

“If stays are put loosely on, and only worn occasionally; and if the girl takes sufficient active exercise, and rests in a proper manner when fatigued, there is little danger of the form suffering even from strong stays. But although, by this method, stays may be rendered almost harmless, there will be some difficulty in pursuing it, as the girl will feel the occasional bondage very uncomfortable. The annoyance produced by it, is marked by the flushing of the face from impeded respiration, and by a stiff and constrained manner of walking. The remedy generally proposed is, that *she should wear the stays until she gets used to them*; this advice will probably be followed; and then it is likely that the bad effects, already described, will ensue.”

The common means which have been recommended for curing a stoop, are to confine the head backwards by a steel rod fastened to a cap above, and a bandage around the chest, or to draw it constantly backwards by a weight fastened to a strap passing from the occiput. But as this kind of deformity depends essentially on a comparative weakness of the muscles of the nape, Mr. Shaw very properly objects to all such contrivances as absurd and injurious. Indeed one should prefer the very opposite mode of counteracting the stoop if he were convinced of the importance of applying any mechanical means. “Porters who carry burthens on the back by the assistance of a band round the forehead, always stoop; while those who carry baskets before them suspended by a band round the back of the neck, are peculiarly erect.”

The following is a very interesting case in illustration of this subject.

“The very worst consequences may ensue from any system

of treatment where a constant resistance to the muscles of the fore-part of the neck is kept up.—A gentleman had for many years worn one of the collars invented by Mr. Chesher. By using this machine two very bad effects were produced; the muscles of the back were so weakened as to be rendered incapable of supporting the column, while those on the fore-part of the neck were so disproportionately increased in strength, by the constant resistance opposed to them by the strap passing from the suspending rod under the chin, that whenever the strap was loosened, the chin was forcibly drawn towards the chest. As the muscles of the back part of the neck did not offer any counteracting resistance, the windpipe was now pressed down or almost doubled on itself. As soon as this took place, (and it was almost immediate on the attempt to sit up without the collar,) the patient was seized with such a sense of suffocation as to be obliged to throw himself on his back. As he was able to breathe with ease while he lay on his back, his advisers were led farther into error, and believed that it was the weight of the head which pressed down the windpipe. To counteract this pressure various contrivances had been proposed to support the head. Indeed the patient himself was so convinced, from what he had heard, that it was the weight of the head which pressed down the windpipe, and so alarmed had he become from the certainty of having a fit of suffocation when the head was left unsupported, that I had much difficulty in persuading him to believe that if the head could be made heavier, the sense of suffocation would be relieved. I at length induced him, although he submitted with great dread of the consequence, to allow me to place about fourteen pounds of shot on the top of his head. He was very much alarmed, but it was highly gratifying to witness his surprise and pleasure in finding, that instead of his head being weighed down, he could support it, and could breathe with ease while in the upright posture. The principle on which I proceeded was this:—The muscles of the back part of the neck had been brought into such a state, that their ordinary stimulus was not sufficient to excite them to the action necessary to counteract the efforts of those on the fore-part of the neck, which had been evidently increased in strength. The placing a weight on

a certain spot on the head formed an additional stimulus to the muscles of the back part of the neck, a fact which the reader may prove by an experiment on himself.

“By proceeding on this principle, by combining a variety of exercises, and by gradually diminishing the weight carried on the head, I had very soon the pleasure of seeing my patient walking and sitting in a state of great comfort, without being obliged to use any artificial support.

“I have since used nearly the same means, and with considerable success, in the case of a patient who was suffering from a paralytic affection of some of the muscles of the back part of the neck. I wish I had thought of it while attending a lady who had a very peculiar nervous affection, which gave her the feeling of being about to shake her head off.”

In the case of young children, Mr. Shaw recommends the practice of making them sit with their play-things on the floor before them. By constantly exercising the muscles of the nape, the habit of stooping will thus be effectually counteracted.

In confirmation of this idea, he instances the erect and strutting gait of tailors, who are in the habit of calling the posterior muscles of the spine into constant action while sitting in a bent posture on their shop-boards. The appearance of shoe-makers is also, according to him, characteristic of the same circumstance.

“The tailor’s figure is very erect, but the right shoulder is generally a little higher or larger than the left; from the constant exercise given to the right arm, while the left rests upon the knee: this inequality of the shoulders is not observed in the shoemaker, because he not only uses both arms equally, but the muscles by which the scapulæ are supported, become so strong by the habit of jerking back his elbows while he works, that his shoulders always appear more braced back than those of any other class of persons: indeed so characteristic are the figures of tailors and shoemakers, that they may be easily distinguished in a crowd.

“I have mentioned these circumstances, because they afford familiar examples of the principles on which we ought to proceed, in endeavouring to correct deformities.”

The following observations are very interesting, and of great practical utility.

“The spine and the ribs are occasionally bent so as to have some resemblance to the back of a spoon. In such cases, the shoulders not only appear round, but the lower angles of the scapulæ project in an extraordinary manner, because the upper and anterior angle is not only unsupported by the ribs, but is dragged forwards by the clavicles which are carried in the same direction with the sternum. When this is to a considerable extent, it constitutes the *contracted chest* or the *chicken breast*. This, in a slight degree, is common in London, and especially among young lads; it may be discovered by the coat having the appearance of being more worn opposite the lower angle of the scapula than at any other part. Such a condition of the chest can only be completely remedied by appropriate exercises; but a collar is here necessary for a time, to keep the bones in the improved condition into which they are brought by the exercises.

“These arguments will probably appear sufficiently well founded to prove that a girl, under ordinary circumstances, cannot hold her head or shoulders back, unless the muscles by which they are naturally supported are in a proper condition; various contrivances have been proposed to strengthen these muscles. Dumb bells, if managed in a particular manner, are good; skipping, when the arms are thrown backwards and over the head are still better, the exercises, called Spanish exercises, performed with two long poles, are also useful, but to each of these there may be objections, as they all operate more or less on the spine or ribs, which, in cases of a bad stoop, are generally affected.

“The following anecdote, for which I am indebted to a very eminent surgeon, will set the question of the propriety of wearing the back collar in a correct point of view. He was consult-

ed by a gentleman, who is now one of our first tragedians, as to the best mode of correcting a stoop which he had acquired. My friend told him that neither stays nor straps would do him any essential good, and that the only method of succeeding was to recollect to keep his shoulders braced back by a voluntary effort. But the tragedian replied, that this he could not do, as his mind was otherwise occupied. The surgeon then told him that he could give him no further assistance. Shortly after this conversation, the actor ordered his tailor to make a coat of the finest kerseymere, so as to fit him very tightly, when his shoulders were thrown back. Whenever his shoulders fell forward he was reminded by a pinch under the arms, that his coat cost him six guineas, and that it was made of very fragile materials; being thus forced, for the sake of his fine coat, to keep his shoulders back, he soon cured himself of the stoop. My friend was much obliged to him for the hint, and afterwards, when consulted whether young ladies should wear shoulder straps, permitted them, on condition that they were made of fine muslin, or valuable silk, for tearing which, there should be a forfeit."

In his chapter on the effects of exercises on the form, &c. our author is very full and explicit. He protests against the custom, now so much encouraged in the boarding schools of England, of fatiguing young girls and boys by athletic games, and extraordinary feats of activity. In scrofulous and rickety constitutions, great harm is often produced by such over exertions of strength; and even healthy children are sometimes rendered extremely clumsy and inelegant in their forms, by the same circumstances. To maintain the natural figure, or, what is still more important, to improve it when it is defective, we must direct a moderate and varied exercise, frequently alternated with intervals of rest and relaxation.

At the end of the volume is an interesting chapter on the treatment of contracted joints, in which the advantages of rubbing with the hand, a practice heretofore too much confined to empirics, is strongly insisted on. As for ourselves,

we have no doubts on this head, inasmuch as we have repeatedly witnessed surprising effects from this kind of management. An empiric in Yorkshire, is said to have attained great celebrity, on account of the numerous cures which he has effected by the same means. He employs a number of women to exercise themselves almost incessantly in rubbing the contracted limbs and stiffened joints of his patients; and some astonishing instances of recovery from the effects of gunshot wounds of the extremities on the persons of British officers, have been detailed to us by eye witnesses. It is not by rubbing alone, however, that such beneficial effects have been produced. Thumbing, shampooing, pinching, percussion, and kneading are all employed with great effect, by the same class of empirics. Steaming with the vapour of aromatic herbs, of alcohol, and of simple water, has also been resorted to with advantage; and Mr. Shaw thinks it an important auxiliary in the treatment of such cases. He has contrived an apparatus for the application of steam to patients while sitting upright, in a chair. On examining the figure and description, however, it appears to be nothing different from the apparatus of Dr. Jennings, so long used in this country, except that an Argands lamp is used to boil a small basin of water in the tin tube, instead of the cup of burning alcohol.

The following extract will serve to explain Mr. Shaw's views in relation to this plan of treatment.

“The cases where this practice is most likely to be attended with benefit, are those of stiff and contracted joints, after rheumatism, or any chronic inflammation. But to do good even in such cases, great perseverance is necessary; and a degree of boldness, which *à priori* we should almost consider dangerous. The professed rubber proceeds in a much more violent manner than those who know the structure of the parts would venture upon, without some previous evidence of the practice being harmless, although, indeed, this violence may be one cause of the rubber's success. But such bold practitioners may occasionally do harm, as they are seldom capable of distinguishing

between the contractions attending the acute inflammations of joints and those which are the consequences of chronic affections, and are also inattentive to the distinctions of constitution, and the possibility of rousing a scrofulous action. However, instances of bad effects from their mode of practice seem to be rarer than we might expect; but we may not hear of all that occur, for although every instance where a quack is successful is blazoned about, parents are so far ashamed of entrusting their children to the care of ignorant persons, that they always endeavour to conceal any mischief that has been done.

“When a surgeon, for the first time, witnesses the operations of a professed rubber, he is a little startled at the violence of his operations, and is surprised at the manner delicate patients bear them. Such were my own impressions at first; but having, about eight years ago, had frequent opportunities of seeing a famous rubber at work, and having witnessed the result of his treatment in several cases, I was so satisfied that, if judiciously combined with other modes, it might not only be safe, but of the greatest use, that I have since been in the habit of ordering the women whom I employ on these occasions, to rub and shampoo with a degree of violence which, to some practitioners, might appear almost unwarrantable.

“It is scarcely necessary to state, that the nature of the case must be carefully investigated before any mode of treatment is determined upon, and that from whatever cause the motion of a joint may have been lost, we should be very cautious in our first attempts to restore it. If the bones be ankylosed, our labour will be in vain, and the attempt to move the joint may be dangerous; but if the bones can be moved in the slightest degree, we may calculate on doing good, for the stiffness may proceed only from inflammation changing the natural secretions of the sheaths of the tendons, or from adhesions having taken place between those parts. By rubbing, and gentle attempts at motion, the cellular membrane, by which the tendons and sheaths are united, may be loosened and extended, the contracted ligaments may be lengthened, and the muscles resume their natural structure and functions. Liniments and oils of different kinds

are generally employed by rubbers with the intention of *suppling the joints*. The use of them is certainly attended with advantage, for a great deal of *friction* is necessary to cause their absorption, on which the rubber supposes the *charm* of the treatment depends. They are also useful in removing any remaining inflammatory state of the joint, or in preventing its return.

“ But although rubbing, shampooing, and a variety of exercises are most useful, and occasionally successful, they should be considered as only part of the plan of treatment; for the position in which a contracted joint is kept, is as important to its cure as the occasional relaxation and exercise. But so much harm has been done by instruments, that parents, and even many practitioners, seem to have a complete dread of them. They are, however, often absolutely necessary; for it will be found as difficult to remedy a contracted and distorted limb, without the assistance of some means to support and preserve it in a certain position, as it is to cure a distortion of the spine merely by exercise. In every case of contraction, the cure will be at least much expedited by any means, however simple, by which the limb may be preserved (during the time it is not exercised) in the improved condition into which it has been brought by the shampooing, &c. Two essential points are gained by keeping the limb in a right position. The alteration in the form of the heads of the bones which is always, to a certain degree, the consequence of the contracted state of the joints, will not be so likely to increase, for the bones are no longer allowed to remain in the position which produced the change; and the muscles and ligaments that have been contracted will actually grow longer if kept extended. This fact is very important in practice, and has been already alluded to at p. 12.” M.

ART. IV.—*Researches into the Nature and Treatment of Dropsy in the Brain, Chest, Abdomen, Ovarium, and Skin; in which a more correct and consistent Pathology of these Diseases is attempted to be established, and a new and more successful method of treating them, recommended and explained.* By JOSEPH AYRE, M. D. Member of the College of Physicians, &c. London, 1825. 8vo. pp. 242.

As Americans, we feel no inconsiderable degree of pride, as well as pleasure, in perceiving doctrines and modes of practice brought forward in England as new, which were taught and well understood in this country more than a quarter of a century ago. The *American* physician will find in this book very little more than what he has long known as sound doctrine; and the *English* physician who will read the works of Dr. Rush, will find in them the original source of this doctrine, and learn the injustice of the contumelious interrogatory, "*What does the world yet owe to American physicians or surgeons?*"

In the preface, the author observes, that it has been a common error to regard "the serous accumulation as the disease itself; and the means employed for its removal as the sufficient remedy for its cause." "To correct *these* and other erroneous notions," says he, "concerning the nature and mode of treating this disease, and to fix its pathology on something like a solid basis, are the objects of the following pages." In the prosecution of this task he continues, "I have no acknowledgments to make to any individual writer as my guide and authority." In the commencement of the first chapter, he observes: "The watery effusion, of which dropsy is considered to consist, *is only one in a series of effects of a disease.* The true disease is to be sought for in that particular condition of the solids by which the effusion is produced."

We have no doubt, whatever, of the soundness of this observation; but it is one, the truth of which has been familiar to us for more than twenty years, and which we learned

during our pupilage, from the eloquent lectures of the late Dr. Rush, and which our author might have learned from his *works*, if it had occurred to him to read "*American books*;" so uncommon, according to the Edinburg Review, on the other side of the Atlantic. That we may not be supposed to deal in assertions without proof, we will, as we proceed, cite such passages from the writings of Dr. Rush, as will bear us out in the foregoing observations. "Having for many years," says Dr. Rush, "been unsuccessful in all cases, except two, of internal dropsy of the brain, which came under my care, I began to entertain doubts of the common theory of this disease, and to suspect *that effusion of water should be considered only as the effect of a primary disease in the brain.*"*

Indeed, although Dr. Ayre declares that "he has no acknowledgments to make to any individual as his guide," we are much inclined to believe, not only from the striking coincidence of his "new" doctrine with the sentiments of Dr. Rush on this subject, but also from the equally striking coincidence of some of the passages in the book with similar ones in the writings of Rush, that he had in reality slyly looked into this "American book," and drawn from it some of its valuable treasures. Witness the following paragraphs, for instance: "The illustrious Sydenham," says Dr. Ayre, "believed from his success in a single case that a drastic purgative was a specific for the cure of abdominal dropsy; and acknowledged with the candour which distinguished him, the surprise and disappointment he afterwards felt by its failure in other cases. Since his time, numerous medicines of various powers, and in pursuance of various objects, have in their turn been adopted and discarded; and such has been the conflict of opinions in regard to the efficacy of most of them, as to create in the minds of many practitioners an utter distrust of them all. The cause, however, of their failure

* Medical Inquiries, vol. ii. p. 213, 3d Edition.

has arisen, not from any intrinsic defect in the medicines themselves, but from the defective pathology which governed their use, and in the neglect of those other aids which were required to give them effect." Compare this with the following passage from Dr. Rush's chapter on dropsies, and our suspicion will not appear to be unreasonable.

"We are taught," says Dr. Rush, "by the facts which have been mentioned, the reason why physicians have differed so much in their accounts of the same remedies; and why the same remedies have operated so differently in the hands of the same physician. It is because they have been given without reference to the different states of the system which have been described. Dr. Sydenham says, that he cured the first dropsical patient he was called to by frequent purges. He began to exult in the discovery, as he thought, of a certain cure for dropsies, but his triumph was of short duration. The same remedy failed in the next case in which he prescribed it. The reason probably was that the dropsy in the first case was of a tonic (inflammatory) but in the second of an atonic nature. All the different remedies for dropsy have been proper in their nature, and only improper in the state of the system in which they have been given." There are other passages in Dr. Ayre's book, which furnish no very doubtful evidence, that, "in the four quarters of the globe," there *are* individuals "who read an American book," and who, perhaps, fearful of the Edinburg critics, are prudent enough not to acknowledge it.*

But we will not quarrel with our author for having, perhaps, taken a sly look into an "American book;"—for whether the light which he sheds on his subject be original with

* "In the four quarters of the globe, who reads an American book? or goes to an American play? or looks at an American picture or statue? What does the world yet owe American physicians or surgeons?" Edin. Rev. No. lxy.

him, or borrowed, it is not the less calculated to do good; because, we freely confess, that it is the light of sound doctrine, and which we should be glad to see as extensively diffused in Europe as it has for many years been in this country.

Dr. A. has divided his book into four chapters. In the first chapter he treats of the pathology of dropsy; in the second he describes the several forms of this disease; the third is devoted to their treatment; and the fourth embraces descriptions of cases and dissections.

CHAPTER I. *On the pathology of Dropsy.*—Dropsy, or the effusion of serous fluid into the cavities and cellular membrane of the body, is not, properly speaking, a disease, but merely an effect of disease. “The true disease is to be sought for in that particular condition of the solids by which the effusion is produced.” This morbid condition of the solids, upon which the dropsical effusion depends, consists “in a morbid action in the cellular or serous tissues, and is allied in its nature to inflammation.”

“In support of this view of the subject,” says the author, “it may be remarked, in the first place, that all the phenomena belonging to cases of watery effusion, met with under one or other of the forms of inflammation, are common to those of dropsy. The fluid discharged under the cuticle from an inflammation of the erysipelatous kind, or from that induced by heat, or by the irritation of a blister, is distinctly a secretion, and resembles in all respects the fluid that is found in abdominal or other dropsies. The fluid collected in pemphigus, which, it is well known, is a disease commencing with detached inflammatory spots, and terminating, after some hours, in watery vesicles, resembles in like manner the dropsical effusion. In some cases of acknowledged inflammation, the fluid effused is found to vary greatly in its degrees of tenuity, so as to be sometimes of quite a viscid nature. The same is observed of the water of dropsy, so that it runs with difficulty through the canula, in the operation of tapping; and instances even have been met with, where the fluid

had consolidated into a mass of jelly, and which could only be extracted in detached portions,* from a considerable opening made for that purpose in the abdomen. And this variable condition of the dropical fluid may be met with in the same patient, on one occasion of drawing it off, and not on a succeeding one: A similar variation in the degrees of tenuity is likewise observed in the fluid discharged into the cellular tissue, constituting anasarca; so that the œdematous parts, when punctured, either discharge no fluid, or do it very imperfectly."

"But it may be farther shown, that the morbid action, which produces the watery effusion, is only another condition of inflammation, since it obeys the same laws. Thus, it is a well known property of common inflammation to be suddenly translated from one part of the system to another, and which is termed a metastasis. This property is also observable in the action producing the serous effusion; and although it has been supposed to be only the fluid which is thus suddenly removed from one part of the body to another, it is unquestionable that, in these cases at least, the metastasis is exclusively of the action which produces the serous discharge. The action, likewise, occasioning the effusion, as seen in anasarca, usually commences at a given point, and is gradually extended thence in a continuous course, analogous to what occurs in inflammation, and particularly in the erysipelatous kind, to which it bears a very strong resemblance, and into which, indeed, it is easily convertible.

"But farther; the results of common inflammation, it is well known, vary according to the intensity of the cause. The lowest degree of it occasions an increase in the quantity of the proper fluids of the part. In the mucous membranes, the product is a mucous fluid, too well known to require to be described. In the serous and cellular tissues it is a transparent, and, usually, a limpid fluid, consisting principally of serum, and more or less charged with albumen, according to the amount of this lowest degree of inflammation. A higher degree of inflammation yields for its product coagulable lymph; a still higher one produces pus.

* "See Dictionnaire des Sciences Médicales, Art. Hydropsie."

All these several products of common inflammation are more or less remedial of their cause; or, in other words, they are the immediate means of the cessation or abatement of the inflammation which produced them. This is observed in the lessening or removal of the pain of a blister, immediately upon the completion of the vesication. Similar remedial effects take place upon the occurrence of suppuration in a common phlegmon. Now, the same power of proving remedial to the inflammation, which is observed to belong to the effusion of a blister, is likewise a property, though in a much less degree, of the hydroptic effusion, when the inflammation which produces it is idiopathic; or, in other words, is not created by a visceral or other disease, or some particular excitement of the general system. Hence the familiar fact of the cessation of pain in the extremities, on their becoming anasarcaous; and of an effusion, which has begun to take place into a cavity, becoming sometimes temporarily suspended, and particularly so in ovarian dropsy, and in hydrocele; and of the effused fluid continuing for several months, and even years, in its sac, without any sensible addition being made to the quantity, until, by some accidental cause being superadded to the original one, the serous inflammation is again renewed."

"By the hydroptic or serous inflammation obeying the same laws which govern the other degrees of common inflammation, it follows, that upon a higher excitement being superinduced upon it, the serous effusion should cease. This, therefore, is found to happen in every case where such higher excitement is brought on. This increased inflammation is sometimes occasioned by design or accident, and, at other times, it occurs in the natural and progressive course of some disease formed within the cavity, which is the seat of the dropsical effusion; and where the morbid action, by extending to the peritoneal covering, had first given rise to the hydroptic excitement. Of the effect of such higher inflammation, we have a familiar instance in the radical mode of cure employed in the treatment of hydrocele. In these, in the first instance, there is that degree of local excitement which terminates in the watery effusion. When, as we have just observed, the primary excitement is inconsiderable, or soon allayed, the effusion is in small quantity,

and is remedial of its cause; since it will continue in its sac for many years without any sensible increase. By tapping, a slight excitement, similar to that which primarily produced the effusion, is renewed, which leads to an earlier and more abundant discharge than what had previously occurred. To cure it, therefore, a higher inflammation than the mere tapping can produce, is purposely brought on by the injection into the sac of a stimulating liquid, by which, instead of the discharge of the former fluid, there is one of coagulable lymph; and a union of the sides of the cavity being thereby induced, a cure of the dropsy is effected."

Precisely the same doctrine is expressed by Dr. Rush. in relation to the pathology of hydrocephalus. In speaking of this disease he says, "From the facts which have been enumerated, and from the dissections to be mentioned hereafter, it appears that the disease, in its first stage, is the effect of causes which produce a less degree of that morbid action in the brain which constitutes phrenitis. It partakes of the nature of the chronic inflammation of Dr. Cullen, and of the asthenic inflammation of Dr. Brown. I have taken the liberty to call it *phrenicula*, from its being a diminutive species or state of phrenitis. No more occurs in this disease, than takes place when hydrothorax follows an inflammation of the lungs, or when serous effusions follow an inflammation of the joints."* Those dropsies "in which the whole system is affected by what is called a hydropic diathesis, depend, according to Dr. Rush, on a certain morbid excitement of the arteries," allied to the morbid excitement which take place in common inflammatory fevers.

From the facts which have been recorded by Drs. Blackall and Wells, and from our author's own observations, concerning the condition of the urine of dropsical patients, which almost always contain more or less of serum, it appears, says the author, that "when dropsy is under a sub-acute form, and

* Loc. citat. vol. ii. p. 226.

of the anasarca kind, it is usually idiopathic, and often originating in cold; and in this state, as well as in the sympathetic form, though in a less degree, the urine is found to contain a portion of serum. It is nearly peculiar to this disease, and denotes, according to the quantity of it contained in the urine, the amount of that excitement in the cellular tissue, and of the general vascular system which may be termed serous inflammation: for it is met with most considerably in those forms of the disease in which these particular states of the body are most apparent.”

“The urine, therefore, with some occasional exceptions, is loaded with serum in the greatest abundance in those cases where the effusion into the skin precedes the local dropsy, and which denotes the operation of a general cause; whilst, on the other hand, it is, although commonly present, yet in smaller quantity where the anasarca succeeds the other form; since this order in their appearance indicates the existence of a local disease, as a cause both of the local and general affection. It is, therefore, in the sub-acute, and idiopathic forms of dropsy, that this state of the urine prevails the most; and it is in this state, with some occasional deviations, that the defective action is most conspicuous of the excretory functions of the kidneys, but especially of the bowels and skin, as shown by the scantiness of the urine; and particularly by the costiveness and the unperpirable state of the surface.”

To elucidate his views in relation to this point, namely, the secretion of serous urine, our author enumerates the four following conditions of the system, as regulating this occurrence:

1st. The serum is most abundant in the urine, when with “a copious and continued effusion, there is a nearly corresponding rapidity in the absorption of the serous fluid. This occurs most commonly when the general excitement precedes, and is a cause of the local, and *vice versa*.

2d. It is absent, or exists only in a small proportion, in cases where the local increased action is only partially ex-

tended to the system generally, and when the local dropsical effusion is but slowly absorbed, as happens in the encysted kinds; or

3d. Where the dropsical effusion puts a stop to the inflammation which produced it.

We pass over the remaining portion of this chapter, and conclude our account of its contents with the following recapitulation of the author's pathological doctrines, and the facts by which they are supported.

“*Recapitulation.*—1. The term dropsy, though employed by nosologists to designate a disease, whose essence is considered to consist in a serous effusion, must be understood as denoting only one of a series of effects, and not always the last of that series, arising from a morbid condition of the serous and cellular tissues of the body.

“2. The serous accumulations from these tissues do not occur, as is commonly but erroneously supposed, from any want of tone in the absorbents; or from a similar state of the exhalants; or from a mechanical obstruction to the blood's return by the veins. For, in respect to the first of these assigned states, it can be shown, that, pending its assumed existence, an absorption readily takes place of the adipose matter or fat of the body—of ecchymoses or livid spots under the skin,—and of mercury and other absorbable matters rubbed upon its surface, or taken internally;—and there is no accumulation of the sinovial or other fluids in their cavities, consentaneously with the serous accumulation.

“3. The opinion of the effusion depending upon a debility of the exhalants, involves in it the difficulty of supposing, either, that there may be *mechanically separated* from the blood a fluid, which, at another time is *secreted* from it; or, that an increase in the quantity of a secretion may continue an indefinite period, under a permanent debility of the secreting vessels.

“4. The theory of a mechanical obstruction being a cause of local dropsies, is disproved by the facts, that every assignable degree and kind of visceral disease is met with without any local dropsy; and local dropsy without any discoverable visceral dis-

ease;—by the varying degrees of rapidity with which, during given periods, the course of an accumulation proceeds;—by the varying degrees of tenuity of the serous discharge in successive effusions into the same cavity;—by the nearly uniform tendency of tapping to occasion an earlier renewal of the serous accumulation;---and, lastly, by a direct evidence being afforded, that mechanical obstructions to the circulation, of the most direct kind, and very greatly exceeding those assumed to exist as causes of local dropsy, may occur, both temporarily and permanently, without producing the slightest appearances of a serous discharge.

“5. That the effusion, therefore, arises from some *particular action in the serous tissue*, and that this action is analogous to inflammation, is assumed, from several of the foregoing facts;---from the identity of the fluid of dropsy with that under some of the recognised forms of inflammation, even to the varying degrees of their tenuity; and from the action proper to dropsy obeying the same laws which govern inflammation generally. Since,

“6. The action producing anasarca is propagated gradually by a continuous course along the serous tissue, as happens in common inflammation;---is subject to metastasis; and is convertible into the higher forms of increased excitement. For the cellular membrane, in common with the other tissues of the body, is subject to various forms or gradations of inflammation. The highest is that in which pus is secreted; the second occasions a discharge of coagulable lymph; the lowest produces, as its result, an increase in the natural secretions of the part; and which, when produced in excess by natural causes, constitutes dropsy. Of these, therefore, the highest form, when supervening upon it, is destructive of the action producing the lymph, and this of the action producing the serum; and the effusion, whether of pus, or lymph, or serum, may be alike remedial of the excitement producing it, where that is not continued by a permanent cause.

“7. The serous inflammation producing a local dropsy, beside the causes hereafter to be noticed, may arise from some disease existing in the serous membranes of a cavity; or it may be secondary to a chronic inflammation in some viscus, and which,

by a slow and progressive action, is propagated to the serous membrane investing it; whence, as from a point, it gradually spreads along the membranous duplicature of the cavity. When once established, it may be continued as a chronic affection, independently of its primary cause; whilst, on the other hand, it will be aggravated by all those causes which increase the visceral disease; and even to the extent of having a higher inflammation superinduced upon it, by which coagulable lymph may be poured out, and a farther effusion of water be prevented.

“8. Beside the proofs deducible from the particular phenomena of local dropsy, farther evidence of its depending on an inflammatory action, is derived from being sometimes connected with, and at other times arising from, a similar excited state of the general system, as denoted by the presence of serum in the urine, and sometimes by the state of the pulse, and of the blood; and which excitement may be either idiopathic, when it is usually most considerable, or symptomatic from a local disease. The absence of the serum from the urine, in the milder forms of the disease, may depend upon the insufficiency of the remote cause to act upon the general system; or upon the insufficiency of the local disease to induce the morbid action there; or it may depend upon the effusion into the serous tissue having removed the excitement which occasioned it.

“9. And, lastly, there is a constitutional effect arising from a permanent hydropic effusion, which agrees in its nature with that which proceeds from a long continued purulent discharge; they both being akin to the effects which proceed from an habitual hemorrhage, or from such other cause, as either withdraws or withholds from the blood one or more of its nutrient parts. The gangrene, therefore, which supervenes upon an œdematous limb, under the cachexy induced by any of these causes, is only what is common to the other forms of inflammation, under that condition of the system; and whether the hydropic state, or any other modified form of inflammatory action, precedes, or follows, as the cause or consequence of the cachetical state of the body, the gangrene, which ensues, is alike derived from the constitution.”

Hydrocephalus.—This disease is usually divided into three stages; the first being characterized by symptoms of general and cerebral excitement; the second by symptoms of compression or organic leison of the brain; and the third “by some of these with other ulterior symptoms which follow the vascular reaction. Our author thinks it questionable whether this division be pathologically correct:

“For strictly speaking,” he observes, “the true disease is comprised between the incipient beginnings of the inflammation, and its termination by the effusion; since the symptoms which follow and compose what are called the second and third stages, are little more than the consequences of the disease, and arise from mechanical pressure of the water upon the brain. The progress, therefore, of what may be strictly considered the disease, should perhaps be considered as terminating with the occurrence of the effusion, which is often remedial of the excitement causing it: and the whole disorder to be thus made up of two distinct states, the first consisting of symptoms, which commencing with the excitement, terminate with the serous discharge; whilst the second is composed of those of a secondary kind, and which are wholly dependant for their origin and continuance on a mechanical pressure from the effused fluid.”

The symptoms which denote the approach of hydrocephalus are such as indicate an excited state of the brain. The most prominent of these symptoms are: a dull and sullen expression of the countenance; peevish and irascible temper; alternate flushings and paleness; giddiness; dimness of sight; nausea, and a constrictive pain about some part of the head, most usually the forehead, increased by a strong light or noise, and by any sudden movement of the body; watchfulness, or somnolency; costiveness, or a variable state of the bowels and appetite.

Hydrocephalus appears sometimes as an idiopathic, and at others as a symptomatic affection. Among the most common causes of idiopathic dropsy in the brain, are: various injuries

inflicted on the head by slight blows; “which, in constitutions naturally predisposed to the disease, will often be sufficient to produce that particular increased action in the serous membrane, which occasions an effusion of water.” The same results may arise from the action of any of the general causes of inflammation.

When the disease is symptomatic it may depend on particular causes seated within the head, or on some remote and local affection. Its occurrence from causes seated within the head is exceedingly uncommon. The causes of this kind are, “tumours, or a thickened state of the arachnoid, or, of the other membranous coverings of the brain from former inflammations.”

“Sometimes adult patients wholly recover from the chronic or sub-acute inflammation, which induced the structural disease, and then this last becomes, at some future period, the occasional cause of the hydropic one. In a case of this kind which I saw lately, the gentleman, a dissenting minister, about thirty years of age, had been attacked a twelvemonth before with a sub-acute inflammation of the membranes of the brain, from which he recovered, so as to resume his clerical duties, and was considered by his friends to be in good health, with the exception of a head-ach, and some numbness in his arm, of which he occasionally spoke. On a Saturday he complained of his head, and of being otherwise unwell: on the following morning, whilst in bed, he was seized with an epileptic convulsion: through that day and to the end of the third one, when he expired, he was seldom free from them; and before his death he was wholly blind and paralysed. On opening the head, the arachnoid membrane was thickened, and its transparency in several places destroyed; and there were several diaphanous adhesions between it and the dura mater, which were the consequences of the former inflammation. Four ounces of water were collected in the ventricles; but no other vestige of recent inflammation was discoverable in them, and the texture of the brain was natural.”

The most common cause of sympathetic dropsy in the

brain, however, is a deranged state of the digestive organs, and more especially of intestinal irritation. The majority of cases which occur in practice depend on causes of this kind. The irritation of worms, and other acrid substances in the bowels has a powerful tendency to determine the circulation to the encephalon, and to give rise to that morbid action in the blood-vessels which terminates in effusion. The powerful influence which intestinal irritation has on the brain, is strongly manifested by the ultimate symptoms under which many children die from *cholera*. In the majority of deaths from this disease, the brain towards the conclusion becomes oppressed so that the patient seems to be in the last stage of hydrocephalus.

“The cerebral disorder, to which a derangement in the digestive functions thus gives rise, is only one of those numerous effects which arise out of sympathies subsisting between these organs and different parts of the system. In many cases the same sympathetic irritation is successively and variously directed to different parts of the system. It will thus leave one organ or part, and suddenly move to another; and through the operation of causes which are not always obvious, but which have a relation to some particular predisposition inherent or acquired. In this way, an irritation may occasion an eruption upon the skin, and thence be translated to the bronchial lining, producing a cough; and next, perhaps, to the serous tissue of the brain, exciting there a turgescient or congestive state of the cerebral vessels, by which symptoms are produced, through the pressure of the congestive vessels, that simulate those of hydrocephalus; or the true disease is brought on by an arterial re-action ensuing upon the congestion, which is resolved by a serous effusion.

“And here let me remark, that the symptoms, which arise out of the disturbance in the digestive organs, just noticed, are naturally divisible into two classes. One of these belong essentially to the complaint; for the symptoms of it are those which are constantly present in it; whilst the other class is composed of symptoms which are secondary in respect to them, and are only of incidental occurrence. The symptoms of the first class

are principally the following: A morbidly craving desire for food, which, after continuing an indefinite period, is succeeded by a loathing of it, and with a feeling of faintness at the stomach under both these conditions of the appetite; with nightly returns of fever and starting, during sleep; the tongue furred, and dry on waking; a nauseous odour of the breath; listlessness and fretfulness, and a disinclination to take exercise, and a marked unaptness for study; drowsiness; chilliness and coldness of the feet; an aching in the knees; diminution of the flesh and strength; costiveness, or the contrary state; a yeasty-coloured, or highly dark and morbid condition of the stools, which are intermixed with slime; sallowness of the complexion; a harsh and dry state of the skin and hair, with a proneness to perspire under very slight exercise. The symptoms of the second class are made up of these, and of various others, which are more peculiarly sympathetic, and which, under the influence of a scrofulous diathesis, or other disordered habit of the system, may become themselves diseases, and even survive the morbid and distant irritation which produced them.

“From observing the marked connexion thus seen to subsist between this turgescient state of the brain, from chylopoietic disturbance, and its serous inflammation, Dr. Golis has concluded that it essentially pertains to it, and, therefore, whenever it occurs, that it is a part of it; and he has thus considered it as forming the first stage of the disease, and preceding in all cases the excitement; and has accordingly enumerated, with their supposed diagnostic distinctions, all those very various and dissimilar symptoms, so multitudinous in their number, which belong to chylopoietic derangement, as denoting the approach or the presence of the cerebral disease.”

Intestinal irritation, says our author, sometimes produces a venous congestion in the brain, which simulates hydrocephalus by manifesting all its pathognomic signs. This form of the disease “is of comparatively easy removal, by means that are exclusively directed to the distant sympathetic cause.” The difficulty of distinguishing between simulated and true hydrocephalus is “not merely considerable, but often insur-

mountable,” and a true opinion of their nature can frequently be formed only by the result. The simulated disease depends on pressure from turgescence of the cerebral vessels; and wants only “that arterial re-action which should cause the fluid to be effused to constitute the true disease.”

“The cerebral turgescence and disturbance, therefore, in whatever degree they may exist, are only, when sympathetically produced, to be considered as morbid causes, whose presence, where the predisposition prevails, may lead to a serous inflammation of the tissues of the brain, but which do not form, in any sense, parts of the disease itself; since, under every degree of them, they are so frequently remediable by means which are alone available for the removal of their distant and sympathetic cause. Nor is the distinction, here pointed out, of little practical importance; for the treatment suited to a turgescient state of the brain of an idiopathic kind, and, therefore, independent of any distant cause, must necessarily differ from that which is strictly symptomatic of chylopoietic disturbance. In the one case; the attention must be exclusively given to the turgescient state of the cerebral vessels, as constituting an integral part of the disease; whilst, in the other, it must be directed principally to the disturbed condition of the digestive organs, and only subordinately to the head; as it is only by correcting the disorder in the digestive functions that the congestive state of the brain, as occurring in this latter case, can be permanently removed.”

SECTION II. *Hydrothorax, or Water in the Chest.*—“The symptoms of this affection,” says our author, “pertain only remotely to the true disease.” They arise from the pressure of the water upon the organs seated within the chest; and consist of a sense of oppression at the precordia, habitual difficulty of breathing, “increased by all those circumstances which call for full and frequent inspirations;” a cough either dry or attended with a slight mucous expectoration; difficulty in lying down, occasioning when attempting it a sense of suffocation, and an aggravation of the cough; sudden startings from sleep; thirst; scanty urine; œdema of the extremities.

“None of these symptoms, singly, are pathognomonic of the effusion; but they are so when taken collectively, and particularly so when considered in connexion with the previous history. They are, however, only symptoms of the effusion; and as the excitement sometimes terminates with the occurrence of the serous discharge, the existence of the excitement is only in many cases discoverable to have existed by its effects; for there are no signs which clearly point out the presence of that state previous to the appearance of the effusion. Writers on the subject, indeed, have spoken of precursory or premonitory symptoms; but what they describe as such are nothing more than those arising from an inferior degree of the effusion, which has already commenced; and are, of course, only a milder form of those symptoms which have just been enumerated. They are, however, important in a practical point of view; for by recognising them early, we are enabled the earlier to combat with the disease.”

Hydrothorax, like hydrocephalus, occurs either as a symptomatic or an idiopathic affection, and may proceed from local or general causes. In either case, however, the nature of the inflammation which produces the effusion is the same.

“There is no pretence for dividing this disease into stages, as is done in hydrocephalus internus: for the symptoms which precede the effusion, are too obscure to be recognized: yet the morbid actions immediately exciting the watery discharge, or, in other words, the proximate cause of both is the same.”

As is the case in hydrocephalus, so also in hydrothorax, a serous inflammation exists as the essential pathological condition of the disease. The mode by which this serous inflammation is induced in hydrothorax, is by the *extension* of chronic inflammation existing in some diseased viscus or organ, to the serous membrane lining the cavity of the chest, “and not by the same form of inflammation being set up in them, by a certain sympathy or consent of parts, which, from a loose analogy, has been thought to subsist between similar structures.”

Our author next enumerates the particular diseases within the thorax which tend to produce hydrothorax. In many cases, says the author, the danger of the original organic disease is by no means considerable, excepting as the cause of the hydropic effusion; in others, on the contrary, the dropsical effusion is the consequence of a disease essentially of a fatal character. When dropsy in the chest is independent of any organic disease existing there, its remote causes may be either of a general or local kind, “and are the same which produce, when applied in a higher degree, or under different states of the system, the other forms of inflammation.”

“When, therefore, inflammation takes place in the chest, it may, according to the degrees of it, produce different results; and these may be either pus or coagulable lymph, or a serous effusion, or a mixture of these. If the inflammation be high, and means be employed late, or in an insufficient degree, for subduing it, a lower or chronic form of the inflammation may be left behind, which may produce a watery effusion; or some structural disease remains as an effect of the higher excitement, and which eventually becomes a cause of it. The occurrence of this result, in either of these modes, is sometimes attributed to a debility, arising from the large depletion of blood-letting, which the severity of the previous inflammation had called for.

“That such opinions, however, are founded in error, may be shown from this, that the effusion, thus imputed to debility, does not occur sometimes, until some weeks or months after the period when the bleeding was employed; and although the debility is confessedly of a general kind, yet the effusion is local, and is precisely in the very cavity where the disease existed, which required the unjustly condemned evacuations. The truth of the matter is, that in such cases either the depletory means have been employed in an inefficient degree, or too late; or sufficient care has not been given during the convalescent state, to avoid the several causes which tend to keep up, or increase the force of the local, or general circulation. A lower grade of inflammation, therefore, is left behind in the chest, by which it may, according to the tissue it is seated in, either become an

immediate cause of effusion, or induce a structural disease in some part, which eventually serves as a point whence the serous inflammation may derive its origin. The imperfect recovery of such patients from their first attack, and which is attributed to the depletion, arises from the disease which is left by it, and to the injudicious means, perhaps, that are employed by the too anxious attendants, with the view of restoring the strength. In such patients there may be often traced a permanent difficulty in the breathing whilst at rest, or an obstruction to the full and free expansion of the chest, upon a trial made for that purpose, which is irreconcilable with the assumed cause of debility; though in other cases, from the obscure nature of the symptoms, or the little inconvenience sustained from the chronic disease, the effusion into the chest will at length occur without any indications of its approach."

Scarlet fever frequently serves as a remote cause of hydrothorax, "and in a mode not fully understood." In many instances it appears as a sort of critical termination of the disease, analogous to those pustular eruptions which appear at the close of other acute diseases. When hydrothorax occurs as a sequel to scarlet fever, some slight œdema about the neck or chest usually precedes, and is almost always attended with considerable vascular excitement. "The urine, in these cases, is often of a brown hue, and loaded with serum; and the course of the disease is sometimes so rapid, as to prove fatal as early as the second day after its appearance." A congestive or plethoric state of the sanguiferous system has a much greater influence in producing this disease than is commonly supposed.

"Thus in many persons, particularly such as indulge in the pleasures of the table, and take but little exercise, there is a tendency to a plethoric fulness of the venous system, with a disposition to local congestions. In some the congestive fulness prevails chiefly in the chest, tending to an arterial reaction. In this state, any slight additional increase in the force of the general circulation, or any cause such as obstructed per-

spiration, &c. disturbing farther the balance between the two systems of vessels, may occasion such a particular excitement in the serous tissues of the chest as to produce the serous effusion."

SECTION III. *Ascites, or Water in the Abdomen.*—The watery accumulation in ascites is of little importance abstractedly from its cause; "and in this respect it differs from hydrocephalus and hydrothorax, in which the effused fluid, from whatever cause it may arise, constitutes an important feature of the disease." The cause therefore of the effusion, and not the effusion itself, is the object to which the attention of the practitioner must be chiefly directed. It may occur as a symptomatic affection of some visceral disease, generally of the liver, spleen, or mesenteric glands. "To produce, however, a dropsical effusion into the abdomen from this cause, it is necessary that the disease of the viscus should be making progress, for in its indolent state, or in other words, if inflammation be not present in it, it is incapable from its mere bulk, as is commonly but erroneously supposed, of producing this effect." The liver may continue for several years in an exceedingly enlarged state, without giving rise to abdominal dropsy. When, however, some accidental cause acts on the enlarged viscus, and excites inflammation in it, an effusion of water at length takes place. This is particularly the case with the spleen. The effusion into the abdomen does not always take place where the parenchymatous structure of the affected viscus alone is indurated; but where the peritoneal covering participates in the disease, and requires a state of chronic inflammation, dropsical effusion will always follow in greater or less degree.

"The chronic inflammation which gives rise to the dropsical effusion, passes from the inflamed or morbid cellular tissue of the organ to the serous membrane investing it; and from thence, as from a point, it spreads with varying degrees of rapidity through the whole of the peritoneal investiture. The morbid

excitement, when once established in the peritoneal membrane, continues essentially connected with its primary cause; and the gradual increase of the disease within the organ, is followed by a correspondent increase in the intensity or extent of the serous inflammation in the peritoneal surface. The rapidity of the accumulation will be governed, therefore, by the intensity or extent of this excitement. Prior to the first tapping, in symptomatic cases of ascites, the accumulation of the water proceeds much more gradually than subsequently; for by the tapping, a cause of farther serous inflammation is generally superadded to the original one. After each successive discharge by tapping, therefore, the water is commonly renewed more quickly, and on one of these occasions, perhaps, a sub-acute or chronic inflammation is induced in some part of the peritoneum, by which a farther disease of that membrane is occasioned; and at length, either by the increase of this superadded disease, or as an effect of some succeeding operation, a still higher degree of inflammation comes on, which may prove destructive of life.

“In some instances, where there is considerable disease of the liver, the water of the first accumulation may be absorbed and carried out of the body, and the patient may thus undergo a cure as it respects the effusion; but the serous inflammation, which caused the discharge, has only, in this case, yielded to an inflammation of a higher grade, which may arise, either from the peritoneal membrane participating in the increase of disease in the affected viscus, or, by there accidentally supervening upon the secondary one a farther cause of inflammation. In these instances, as well as in those in which a higher inflammation succeeds the operation of tapping, coagulable lymph is poured out, by which the peritoneal surfaces, which were formerly the seat of the serous inflammation and effusion, are perhaps agglutinated together; and a fresh and more formidable disease is thus superinduced upon, or superadded to, the former one. In the worst of these cases pus is discharged from some points of the inflamed surface, and which, by mixing with the lymph and serum that are poured out at other parts, forms an apparently homogeneous fluid of a milky colour, which in puerperal and other cases of abdominal inflammation, has been strangely be-

lieved by some to be chylous; and by others, an effusion of the milk by a metastasis."

Idiopathic ascites may proceed from any of the common causes of inflammation. Cold, however, is the most frequent cause. When cold acts generally, the ascites is usually combined with anasarca, and the disease comes on suddenly, and has a rapid progress. In cases of this kind there is fever, with very considerable thirst; the blood when drawn is buffy, and the urine contains a large quantity of serum. Robust and labouring persons are most subject to this form of dropsy. The effusion, when large in quantity, may become a source of further disease "by the mechanical irritation it gives by its pressure to the organs and integuments of the abdomen."

"Of the power which the pressure of the distending fluid has upon the parts surrounding it, we have a familiar instance in the entire absorption of the fat from the parietes of the abdomen, in those labouring under ascites. And that the organs themselves do not escape from an injury inflicted by a compressing fluid, I have repeatedly witnessed. In one case which I saw of hydrothorax in a boy, who laboured under this disease during several months, and where the effusion was confined to the right side of the chest, the pressure of the effusing fluid had been so considerable, and so long kept up, as to cause the entire destruction and absorption of the right lung; so that the whole that was found remaining of it, was a small portion of membrane loosely attached to the upper part of the chest, and floating in the surrounding fluid."

SECTION IV. *Ovarian Dropsy.*—This is a very short chapter, and not sufficiently interesting to require any particular notice.

SECTION V. *Anasarca, or Dropsy in the Skin.*—This disease, according to our author, consists in a serous inflammation in the cellular tissue of the body, with a serous effusion as its result. This, like the preceding forms of dropsy, may be either symptomatic or idiopathic, local or general. Idio-

pathic anasarca commonly arises from cold, or from scarlatina. When it arises from cold locally applied, the effused fluid is of a highly viscid or gelatinous character; the disease being commonly local, having a strong resemblance in its sensible appearance to phlegmasia dolens, to which the author is inclined to believe it is closely allied. The serous effusion of one part *appears* sometimes to be translated to another; but this is not a translation of the serous fluid, “but only of the serous inflammation yielding the fluid. This transference of the morbid action, is usually to some other part of the cellular tissue; but sometimes it is to the serous membrane of the brain, or to the cavities of the chest or abdomen.” Œdema of the feet frequently occurs as a consequence of a derangement of the chylopoietic functions, particularly in young females with obstructed catamenia. The most common form of anasarca, however, is that which is symptomatic of some visceral disease. It generally begins in the feet, and is not often attended with any evident symptoms of increased vascular excitement in the parts affected. When combined with ascites, “it has been supposed to arise from pressure made by the water on the iliac veins, by which the returning blood is impeded in its course.” Our author objects to this mode of explaining the occurrence of the disease. “Frequently,” he says, “in pregnancy, the uterine pressure produces considerable swelling of the crural veins, without any serous effusion resulting from it.” He does not indeed deny that a mechanical compression of the vein will not in some cases produce effusion into the cellular membrane of a part.

“A pressure made on the brachial vein and its branches by schirrous glands in the axilla, is a common cause of this state. The remote cause is here, indeed, of a mechanical kind, but not so the proximate cause of the effusion. By the resistance given, in this case, to the blood’s return by the principal veins of the limb, a re-action is occasioned in the extremities of the arteries leading into the corresponding extreme branches of the veins,

94 *Ayre on the Nature and Treatment of Dropsy.* [April, and which re-action is in this, as in a multitude of other occasions, of congestive fulness in these vessels, a sanative effort of nature to overcome the primary obstruction.”

Dr. Ayre also objects to the commonly received opinion that local and general debility are a cause of anasarca swellings of the limbs in chronic diseases. This opinion is predicated on the fact, that anasarca swellings occur in a limb by keeping it long in a depending position; and that they are relieved by a horizontal one. It has also been supported by arguing, that the occurrence of an inflammatory state of the parts is incompatible with such debility, and that the want of a preternatural degree of heat on the surface contradicts the existence of an inflammatory condition.

“Upon which objections,” says Dr. A. “it may be observed, that the supposition of the general debility being the cause of the local one, and this last of a simple mechanical separation of the serous fluid, is invalidated by the fact, that the effects are in no correspondence with the assigned cause; for in a multitude of cases of both chronic and acute disease, the general debility, as well as the local one, as far, at least, as this last can be judged of, is often excessive, as in the last stage of fevers, and yet without being attended by any effusion; whilst, in other cases, the serous discharge is considerable, and the debility only slight. That with respect to a proof being afforded of such debility, by the anasarca state occurring most considerably when the limb is in a dependant position, it may be observed, that this state of the limb will be produced in the strongest person when unduly subjected to this cause, and where the debility is immeasurably less than that which prevails in typhoid and other debilitated patients, in whom no such effusion is produced; and that, with respect to this and the other objections, it may be farther observed, that there is, it is well known, in certain fatal chronic diseases, a tendency in the lower limbs to take on a low inflammatory action, and often of the erysipelatous kind; and that, therefore, the still lower degree of it, proper to anasarca, may be well imagined to prevail. And if, be it remark-

ed, the depending position of the limb increases the effusion, and the horizontal one relieves it, it is only what is common to all the other forms of increased action, and which proceeds from the higher congestion of the vessels induced by such a position. The temporarily dependant state of the limb, in fact, may aggravate, but does not cause, as the horizontal one will relieve, but can neither prevent nor remove the hydropic inflammation of the part. And with respect to the temperature of the surface of œdematous parts not being preternaturally raised, the objection, if of any force, must apply to all, for all have this peculiarity, and yet some cases of œdema confessedly arise from inflammation; differing not, in this respect, from several other morbid states, as those, for instance, of chronic rheumatism, and which are indisputably, as indicated by the nature of their causes and remedies, of a truly inflammatory kind.”

Treatment.—There are three general indications to be kept in view in the treatment of hydrocephalus. The first is to remove, with its causes, that turgescient state of the brain which may produce the arterial re-action and effusion; the second to reduce the arterial excitement when formed; and the third to correct or relieve, as far as practicable, the effects of the effusion, and procure if possible its absorption.

The cerebral turgescence, may arise either from some of the emunctories of the body becoming obstructed, and their secretion diminished, or “from a failure of the natural efforts of the system to produce some one of those obscure but critical and sanative actions, which follow upon certain fevers; or finally from some artificial but long established drain by issue, or other source, being suddenly dried up.” To remove the turgescence when it arises from the two first of these causes, recourse must be had to diuretics, the milder diaphoretics, and aperients, the occasional use of the warm bath, leeches to the temples, and mild sinapisms to the feet, together with a simple unirritating diet, warm clothing, &c. &c. To remove cephalic congestions when it depends on the third variety of causes, an issue established “in the neighbourhood of the

96 *Ayre on the Nature and Treatment of Dropsy.* [April, part where the former discharge was seated," is perhaps the most effectual means we can employ.

"To some of my readers," says Dr. A. "perhaps it may seem like an adoption of the doctrines of the humoral pathologist, to recommend so inconsiderable a remedy as an issue, for so considerable an affection as an incipient turgescence, or impending inflammation of the brain; but whatever may be said, and much may be said upon the question, the fact of its utility in many such cases is indisputable. As an instance illustrative of this fact, among many that have repeatedly fallen under my observation, I may mention here the case of a man whom some years ago I admitted into the hospital for epilepsy, which he had been labouring under during a considerable time. The fits occurred three or four times a-week, and were preceded by that peculiar feeling in his right arm, which is termed *aura epileptica*. By an accidental exposure of that arm at one of my visits, I discovered a scar, and upon inquiry as to its origin, I learnt that it was caused by an extensive sore, which had been discharging during several months, and which had healed up a short time only before he was attacked by the fits. The connexion between his disease and the suspended discharge being apparent, I substituted a seton in the neck for the medicines before in use, and with the result, I need scarcely add, of immediately curing him of his epilepsy."

When the cerebral turgescence arises from some irritation in the abdominal viscera, "the primary disturbance," says Dr. A. "is usually in the liver, as is evidenced by the colour and condition of the stools, and the nature and effects of the remedies, though the irritation which acts sympathetically upon the brain is often seated in the *primæ viæ*." We do not agree with our author, in the opinion that the primary disturbance in cases of this kind, is usually in the *liver*; we believe that in most instances the irritation commences in the intestinal tube, and that the deranged hepatic function is a consequence of the intestinal irritation. But whatever be the truth in relation to this point, we do not doubt of the cor-

rectness of the treatment recommended by our author in cases of this kind. Besides applying leeches to the temples, "small doses of calomel nightly, and in urgent cases two or three grains, or often in the day, and a laxative enema or an aperient draught the succeeding mornings, together with the assistance of diuretics and the most exact attention to regimen, both as to kind and quantity of the food," constitutes, without doubt, a judicious and efficient plan of treatment. When the cerebral inflammation tending to dropsical effusion is idiopathic, bleeding, both local and general, is indispensable. The abstraction of blood, in such cases, must be promptly and efficiently practised. "The object," says the author, "is to make expeditiously such a forcible impression upon the disease, as to remove the urgent symptoms whilst the bleeding is going forward; and where a patient is of an age to speak of the state of his feelings, the bleeding must be prosecuted to this result." Along with leeches, a blister applied to the shaven scalp, may aid in relieving the internal vascular excitement. Dr. A. observes that mercury should never be given with a view to its specific effect in this complaint, unless the disease is symptomatic of some functional disorder of the liver, and other chylopoietic organs, in which case it is calculated to do much good. The author thinks that the cases that have been reported of the beneficial effects of mercury have been examples of the symptomatic kind, depending on abdominal irritation.

"With children, the symptomatic hydrocephalus is, perhaps, a much more common form of it than the simple inflammatory; but it is not always easy to those who are inexperienced in their treatment, to distinguish between them. The condition of the stools, at the period when a child is labouring under the disease, will afford to such persons but an imperfect notion of its true nature; for the disturbance of the brain will often create a disorder in the secretions, both of the liver and the other chylopoietic organs, producing green looking stools; and there is often a congestive state of the brain for a short time preceding the

full developement of the idiopathic excitement, which may, in like manner, by re-acting upon the liver, create a disorder there. In cases, however, which are symptomatic of this cause, the chylopoietic disturbance will be found to have existed several days or even weeks; and the origin of the disorder, in like manner, may be commonly traced to some irregularity of diet, or other obvious causes, and frequently in infants to those which are connected with premature weaning; and sometimes even the cerebral disorder itself will have been only the last of a series of effects in the system, to which such disturbance had given rise."

In cases of this kind, the author gives a-half or a-third of a grain of calomel every half hour, during several successive hours, followed by a laxative enema, or some mild aperient; after some time the doses of calomel are to be repeated until a decided change is effected in the character of the complaint. He cautions the practitioner not to discontinue the foregoing means upon the occurrence of what appear to be symptoms of effusion, "since frequently these symptoms, as it respects the effusion, will unexpectedly manifest their fictitious character, and disappear under a treatment no wise adapted to such a state, and with a rapidity too, which equally betrays their true character."

Dr. A. observes that from cases of this kind, he was formerly inclined to dissent from the common opinion, that cases in which effusion has taken place are remediable. Instances however have come under his notice which have fully convinced him that recovery *does* sometimes take place, even after the occurrence of effusion.

"The instances," says he, "to which I here refer, are those where the effects of compression only subsided very gradually; or where some one or more of them permanently survived the rest. In one case, there were the most decided symptoms of a permanent compressing cause within the brain, among which were a partial blindness and paralysis, with a fatuous state of the mind, but which, in the course of two years, were entirely

recovered from. In another case of a boy twelve years of age, who recovered, there was, among other symptoms indicating compressed brain, such a degree of spinal cramp as to occasion the cataleptic rigidity of the whole body, and which, on subsiding, left behind it the most entire relaxation and paralytic weakness of all the voluntary muscles, with an irremediable imbecility of mind."

We have ourselves had two examples of this kind in our practice. In one case after all the most prominent symptoms of hydrocephalus, the child gradually recovered its health, but was left perfectly blind and paralytic. The blindness continued for six months without any apparent amendment; after that period, it very slowly regained its sight as well as the power first of its upper and finally of its lower extremities. Perpetual blisters were kept discharging from behind the ears for five or six months, and diuretics with laxatives used almost daily. The child is now well, and apparently of sound intellect. In cases of this kind, the brain probably gradually accommodates itself to the moderate degree of pressure occasioned by the effusion, and regains its usual powers of action, without any actual absorption of the extravasated fluid.

In the incipient stage of hydrothorax, "the plan of treatment to be pursued, must consist in the use of such means as are calculated to subdue the chronic excitement of the serous membrane, and the primary chronic inflammation of the diseased organ." For this purpose the local abstraction of blood from the chest by leeches, to the amount of about six ounces every third day, for three or four successive times, together with blistering upon the affected side, are the most effectual measures we can employ. In plethoric subjects, generally, bleeding also must be practised. "Venesection, however," says the author, "will not be necessary in ordinary cases; for local depletion, combined with blistering, is more particularly adapted to correct that chronic inflammation of the serous membranes, which causes an effusion from them, and which

is neither the result of any inflammatory excitement of the general system, nor of a nature to produce it."

Having, by those means, subdued the internal chronic inflammatory action, a seaton fixed in the chest will generally prove highly beneficial to prevent its recurrence. The same practice is equally proper and useful in subduing chronic peritoneal inflammation, and consequently in the treatment of abdominal dropsy.

"Analogous to what occurs in the thorax, the chronic excitement of the serous membrane investing the organs of the abdomen or lining this cavity, is generally kept up by a corresponding state of the diseased viscus, and therefore local depletion will often reduce the primary disease into an indolent state, and thus put an end to the secondary one depending on it."

Dr. A. is no advocate for the indiscriminate use of mercury in abdominal dropsy.

"With too many practioners," says he, "it is the practice to employ mercury freely in every case of abdominal dropsy, under the vague notion of there existing some mechanical obstruction in the liver or other viscus as a cause of it, and under the equally vague notion that mercury so employed will remove it. The practice, however, to speak of it in the mildest terms, is founded on erroneous views of the pathology of these diseases; and employed, therefore, as it is by some, on all the occasions in which they meet with them, must be frequently very injurious. For, independently of the injury to be inflicted by it, when given freely in some of the forms of liver-disease, there is an effect produced by it on the urine, when given to a person in health, resembling that which arises from the specific excitement of dropsy. Under a salivation, the urine becomes charged with serum. Any condition of the system, therefore, approaching even to the state of salivation, must be injurious, by the tendency it must have to increase that morbid state of the body, which is nearest allied to the hydropic one. Hence, the mercurial salivation has been numbered amongst the remote causes of dropsy;

and the resemblance between the dropsical and mercurial excitement, thus established by the common resemblance of the urine in these states, goes far to prove this connexion; and it is not improbable that the mercurial inflammation, when considerable, may survive its specific cause, and degenerate at length into the purely hydropic state. When, however, mercury is given in minute doses, so that these its specific morbid effects are not produced, it is capable of becoming highly useful, as we shall presently have occasion to notice."

Drastic purges have an important influence in subduing the disease; "not merely by removing the water, but likewise by contributing to reduce the chronic peritoneal excitement on which the effusion depends. Our author prefers *gamboge* as a purgative in ascites. He gives it to the amount of four or five grains at a dose, with the same quantity of some aromatic powder," and triturated with a few crystals of the super-tartrate of potash. In urgent cases of hydrothorax, he gives the gamboge in the dose of three or four grains every four hours, until ten or twelve grains are taken, or very active purging is produced.

When the strength of the patient will admit of it, the purgative may be repeated every four or five days. When dropsy depends on an aggravated disease of the liver or mesentery, however, there is often a very considerable tendency to spontaneous diarrhœa; and in such cases, the purgatives must be of the milder kind, and given with great caution.

The *diuretic* which our author employs, and upon which he is accustomed almost entirely to rely, is the powder of dried squills and digitalis given in combination, in the form of pills.

"The dose of the squill is something less than a grain, and that of the digitalis only a sixth part of a grain, given uninterruptedly every third or fourth hour." The minute dose of a sixth part of a grain of digitalis, says the author,

given every three hours in union with squill, "has all the efficacy, as a diuretic, of the largest doses which have ever been ventured on, of this medicine, and none of their danger."

A third, or a-half a grain of calomel given nightly, with infusion of dandelion, or some other popular diuretic teas taken as common drink, in general, very considerably increase the diuretic operation of the squill and digitalis.

In general, diuretics act most beneficially in this disease, when they produce also a slight cathartic effect. "When, therefore, they do not produce the effect on the bowels, and the discharge of urine continues scanty, a proper dose of cremor tartar should be administered every morning," or dissolved in the patient's diuretic drink, and which may be taken in the course of the day.

The foregoing treatment is applicable, principally, to such cases of hydrothorax and ascites as arise from "the serous inflammation of the investing membranes, depending on chronic inflammation of one or more of the viscera. The author in the next place proceeds to speak of the treatment proper for the idiopathic forms of hydropic inflammation, "which may be either strictly local, or consist in a general specific excitement of the system, leading to a general watery effusion; and of which the exhalants of the several serous membranes only partake in common with the rest of the serous tissues." The pulse in this form of dropsy is hard, and general along with topical bleeding, is consequently an important remedy.

"I have met," says the author, "with several cases in which a considerable accumulation of water has taken place in the abdomen, and in the cellular tissue of persons of a plethoric habit, when by a copious bleeding the disease was at once arrested, and the water afterwards absorbed.

"The very successful issue, indeed, of the practice here recommended in cases strictly idiopathic, is among the most agreeable occurrences which the medical practitioner can meet with; for the distressing associations connected with this disease

render its presence a source of considerable disquietude to patients and their friends. An interesting young woman applied to me labouring under abdominal dropsy. It was attributed to cold, and had only existed about three weeks; yet the body had become considerably distended, and the fluctuation very distinct. Her general health was only inconsiderably affected; there was no anasarca; the urine was scanty, and was only slightly coagulable by heat; the pulse was increased somewhat in its force and strength. The abdomen had been gradually enlarging up to the day in which I first saw her, when I directed fifteen leeches to be placed upon her body, and after twelve hours a blister, and to take a brisk cathartic, with some diuretic medicines. On the following day the swelling was found to be stationary, and on the following one it was perceptibly lessened. On the third day eight leeches were again placed upon the body, and a second blister; and the cathartic was repeated. The urine now became copious, and the size of the abdomen decreased. In something more than a fortnight the dropsy was entirely removed, and the patient has since continued well.

“ In some patients whom I have attended under this particular form of the disease, and in whom the recovery was equally rapid, there have occurred returns of the effusion, from neglecting to avoid the ordinary causes of irritation, and which were again removed by the same treatment, and the cure completed by a more scrupulous adherence to the rules enjoined. In one patient this renewal of the dropsy occurred thrice in the course of seven months; and it was not until after repeating the use of the leeching and blistering for several times, assisted by the other means, that the entire re-establishment of the health became secured. These attacks of idiopathic dropsy, according to my observation, are more common with females than men, and more with the younger than with those in middle or advanced age. If in the earlier periods of their appearance they are neglected, or mismanaged in their treatment, and any of the ordinary causes of inflammation be applied, there will be a danger, not only of their becoming established, but of a higher form of inflammation being superinduced upon the first one; when a fresh source of irritation of the peritoneal membrane being created, a

104 *Ayre on the Nature and Treatment of Dropsy.* [April, structural disease of it may be formed, and a cachetical state of the system at length induced.”

On the treatment of ovarian dropsy our author says very little. In relation, however, to the operation of tapping in this form of dropsy, as well as in ascites, Dr. Ayre observes, that in general this operation is resorted to at too early a period of the disease, and often, also, under a condition of visceral disease, which renders its success impossible.

“In cases of simple ascites, to take the most inconsiderable example of it, where the cause is of an incidental nature, and but little connected with hepatic disease, the operation will be attended with no danger, and may be successful, but can rarely, if ever, be required where the proper treatment has been pursued; and should on no account be resorted to until after the amplest trial of all the various means for the removal of the water and its causes; and not until, through the failure of those means, it has begun, by its pressure upward, to threaten a serious disturbance to the breathing, and the other consequences just noticed: since in cases where tapping is too long delayed, the accumulated water, which is but an effect of a disease, may become itself a cause of one.

“The inconvenience of the operation, if so mild a term be allowable, is, we may repeat, in occasioning a renewal, or an aggravation of the serous inflammation in the peritoneal lining; whilst the danger in all cases is in the nature and amount of the visceral disease producing the dropsy; and not in the dropsy itself; because, even a slight degree of disease, especially of the liver, will sometimes produce ascites, when in a severer form of the same disease there shall be a very inconsiderable quantity, or even no effusion of water, from the accidental circumstance of the peritoneal envelope of the organ being implicated in the disease in the one case, and not in the other. Many cases, therefore, of ascites, even when combined with anasarca, may be inconsiderable in point of danger, when the dropsy, under its simplest form of œdema of the ankles, shall be irremediable;

since it is, in this last case, the sequel of an essentially fatal disease of the liver, or of some other viscus.

“ To determine correctly, therefore, regarding the danger of the operation in respect to the inflammation that may ensue upon it, a reference must be had to the nature and extent of the hepatic or other disease, and not merely to the intensity or the extent of the serous inflammation, and its hydropic effusion, both of which are but secondary.

“ In illustration of the importance of referring to these distinctions, I may notice the case of a female patient of about thirty-five years of age, whom I admitted some years ago into the Hospital, labouring under an ascites and general anasarca to a degree that I never saw exceeded. The disease was of some months' standing, and all the usual means had failed with the practitioner whose care she had been under, and who had been only deterred from tapping by the fear of its danger, as her disease was suspected to have originated from intemperance. There were, however, no decided symptoms of hepatic disease, nor any signs of effusion into the chest; and the disease, although formidable in its appearances, and in the disturbance it gave to the breathing, was not so in reality; and the water, therefore, as a measure of necessity, was drawn off by tapping. In three weeks the anasarcaous water was absorbed, and there was no return of the ascites. She left the Hospital well; and I heard several years after that she had since that time continued altogether free from her disease.”

Having now given a full view of the contents of this work, we conclude with the observation, that although Dr. Ayre is not entitled to the credit of much *originality* in the doctrines and modes of practice which he offers, we nevertheless deem it our duty to recommend his work, as one containing many just and rational views in relation to the pathology and treatment of hydropic diseases.

E.

ART. V.—*An Essay on Headachs, and on their Cure.* By WALTER VAUGHAN, M. D. of the Royal College of Physicians in London. London, 1825.

THE author no doubt wrote this volume partly with a view to increase among his professional brethren, the knowledge of the nature and treatment of headachs, for which he deserves their thanks; but by his own declaration he also had a view in writing his book to inform persons out of the profession upon the disease of which it treats, for which he deserves the censure of both. For no medical books do less good to the profession, and none more harm to the afflicted, than those which are written with the intention that they shall be “popular.” Such works are made up, in the greater part, of truisms, of those facts and opinions which have become common property and of a vast amount of compilation. Persons who have not studied medicine, by reading books of this kind get a smaller idea of particular subjects, and are cheated into the opinion that they know a great deal about medicine. The consequence is, that many a sound man imagines himself diseased, and tampers with himself until he really becomes so; seldom, however, confining his quackery to himself, as many of his friends partake of his “good intentions,” and of his bad health. When a physician is called in to the family of readers of this sort, he is treated as if he came to hold professional consultation, not to advise,—his prescriptions are often supplanted by a “recipe,” and his directions are sure not to be followed any farther than they may fall in with their notions.

Under the protection of the title of his book, our author is very careless in his arrangement, and very loose in his definitions; and under that of having written in part for those who have not studied medicine, he is repeatedly guilty of amplifications and wearisome digressions.

As to the main question, how much the work has added to our knowledge of the disease upon which it is written, I shall

leave my reader to judge for himself, and for that purpose I shall give him a fair analysis of the book. The author tells in his preface that he has endeavoured

1. "To remove all ambiguity from the term headach, by pointing out what is essential to the disease signified by that term, and what is not essential:

2. "To show that there is a distinction of headachs in the nature of things; and accordingly to make a division of them so perfect as to comprehend them all; that such errors of judgment as have too often arisen from the confounding of mere pains in the head with headachs, and different headachs one with another, may in future be avoided: and

3. "To give an enumeration of the most common occasions on which headachs take place; so as to trace out those principles, resting not on hypotheses, but on facts, upon which, as *data*, all reasoning concerning the nature and cure of any headach should proceed.

He opens his introductory chapter by telling us that all who wish to know what any disease is, will probably expect to find it in the writings of nosologists. And he asks, "Who, if he consider that no part of the human body is so subject to pain as the head; that even the slightest pain in it may increase and be followed by apoplexy, by epilepsy, by insanity, &c.; and that headach, as a symptom, may occur in almost every disease, does not wish to know what headach, as a disease, is?"

But as Cullen the greatest of nosologists has omitted headach, he thinks it is probable that the "reader may search in Sauvages." He therefore devotes this chapter principally to a review of the three first genera of that author's order, *dolores capitis*, *cephalalgia* *cephalaea*, and *hemicrania*—the other three not relating to headach properly so called. He thinks pains of the face ought not to be referred to the head as is done by Sauvages. To show the necessity of distinguishing between the head and the face, he considers their proportion to each other in the four classes of animals—tells us of the greater

beauty of children owing to their large heads,—of the large heads which the ancients, in their pictures and statues gave to their great men, their heroes, and their gods—explains to us the facial line of Camper, gives us the comparative facial angles from the ourang-outang up to the gods, and introduces Aristotle and Professor Tiedemann to us.

Sauvages calls cephalalgia “a heavy pain in the head,” and makes it depend upon an “infarction of the blood-vessels in the cortical portion of the brain;” cephalaea he calls a “tensive pain,” &c. in the head, and thinks it differs only in degree from cephalalgia.—If this were so our author thinks that they should both depend upon the same cause, which he takes to be impossible, because “the assertion of Sauvages that the pain in cephalaea is tensive, spastic and vivid,” is not supported by Celsus who calls it, when fully formed, “intolerable;” nor by Araeteus, who says that the attack of diseases of the head are tolerable; and because it is not likely “that a slight degree of infarction of the vessels of the cortical portion of the brain causes a sensation of heaviness in the head, and a great degree of it a “tensive, spastic, and vivid pain?”

The opinion of Sauvages that the whole head is affected in cephalaea and only a part of it in cephalalgia, our author thinks is contradicted by the common experience of medical men.

“As Sauvages assigns headach to an infarction of blood-vessels,” which our author does not believe, he speaks at great length of those signs which are often considered “as denoting a greater distension of the blood-vessels of the brain, or what is not very properly called a determination of blood to the head.”

Of Flushed Countenance.—Considering the angles of the carotid and vertebral arteries before they enter the cranium, their anastomosis after they have entered it, and “their minuteness as they pass out of the pia mater into the cortical portion of the brain,” it is clear, he thinks, that the shock which is felt in the other parts of the body from the contraction of the heart, “is scarcely sensible at the circle of Willis: and, there-

fore, that the arteries of the brain must have an inherent power of their own, by which they carry on the circulation of the blood;" consequently there may be a flushed countenance without an infarction of the blood-vessels of the brain. "And very credible authors allow that when both the brain and its membranes have been found loaded with blood, in apoplexy, the face had sometimes been pale."

He considers the signs of headach and those of distension of blood-vessels within the cranium, as essentially different from each other—in headach there is quickness of sensation and of perception, the operations of the mind increase the pain; there is watchfulness, and respiration corresponds, as in health, with the pulse.

Dilated Pupils.—Our author objects to dilatation of the pupils as a sign of compression of the brain, because "it is also a sign of worms in the intestines; and it follows the rupture of a large vomica in the chest;" because "weak, relaxed and scrofulous habits" have generally dilated pupils; and because it does not always attend amaurosis or apoplexy.

Increased pulsation of the Carotid Arteries.—As proofs that this is not a sign of congestion of blood in the brain, he urges the consideration of those cases of headach which are attended with violent pulsation of the carotid arteries, and arise "from excessive and repeated venesection for the cure of acute diseases;" and of those cases of recovery from fainting and concussion of the brain where there is also a violent pulsation of both the carotid and the ulnar arteries. Our author admits there may be a distension of the blood-vessels of the brain "far beyond their healthy state," but not from the impulse given to the blood by the contraction of the heart.

He thinks that flushed countenance, dilated pupils, &c. often attend a diminution of blood there. He cannot see how a merely increased or diminished action of the heart can produce repletion or depletion in any part, and he considers it a law of nature that the brain should be secure against the sudden production of either of these states; he therefore thinks

they depend upon some organic change in the blood-vessels themselves.

Our author says, “but although I cannot conceive how an enlargement of the diameters of the arteries of the whole brain can give rise to any sensation, yet I would not deny that there may be a sensation of pain with a sensation of weight, or with stupor, &c. if the vessels of only one part of the brain contain more blood than usual, and those of other parts less; for a part of the pericranium, or of the dura mater, or of the pleura, being inflamed, a pain is felt in the whole of their extent; and where patients have complained of pain and heaviness in the head, some of the blood-vessels of the brain have been found over distended with blood, and others not at all distended: therefore if we assume a temporary enlargement of the blood-vessels in some spot within the cranium, as the *sine qua non* of headach, we argue from a fact fairly and fully ascertained.”

But he does not suppose that disturbed blood-vessels give rise to pain merely by their pressure, “but rather by occasioning a change in the circulation.”

CHAP. II. *Definition of headach.*—Our author says he will first tell what he thinks “a headach is, and shall next show what is not a headach.”

He “purposed to confine the word headach to every disagreeable sensation, which the patient refers either to the inside, or to the outside of his head, provided that the disagreeable sensation be so increased by the exercise of his intellectual powers, that he is alarmed, reserved and shrinking from the impression of internal objects, his pulse and his respiration being not more frequent than in health, but his temperature, that of his extremities especially, being more or less diminished.”

“The only epithet which Celsus gives to headach is,” that of “intolerable; and unless the pain be intolerable, he says there is no necessity for the remedies of headach.” Our author understands Celsus as meaning by this adjective a pain

which “entirely obstructs our pursuit both of knowledge and happiness.”

The pulse at the wrist is unaltered in headach. He “knows a headach is sometimes attended with fever, at least with a more frequent pulse and a white tongue;” but he regards this as not at all essential to the disease. Respiration he has known to be disordered in headach, yet he thinks that it generally corresponds with the pulse.

He attributes the chilness and coldness of the extremities in headach to a disturbance of the vital powers—and not to that of the “balance of circulation.” He now proceeds to tell us “what a headach is not.”

He thinks it is unphilosophical to give the name of headach to a disease of the integuments of the head which are like the integuments of other parts, and which, when disordered, require the same means of cure. Yet he thinks “it may not be amiss to consider a little by what signs they have been said to be distinguished.”

The pain which attends the “erection of hair-like bristles,” and which is increased by touching the hair, he considers to be an ambiguous sign, as it may depend not only upon a disease of the integuments, but upon some sympathetic affection of them with other parts. He considers “any redness or tumour on the scalp,” as “no better sign than the former.”

“A third sign that the pain, as well as the proximate cause of it, is seated in the integuments of the head, is said to be an obscure redness of the skin, together with a suffusion of the eye.”

This, he thinks, is not significant that the pain is seated in the integuments of the head, because the dura mater “is continuous with the periosteum, binding it so that when” it “is inflamed the eye is red and irritable.”

“Besides, the origin of the ophthalmic artery being within the cranium, and its course into the orbit, would lead one to think an inflammation of the eye denotes a disease within the cranium.”

He thinks Sir Gilbert Blane is mistaken in supposing that any cases of headach from indigestion are seated in the integuments, because it is more likely that the brain should sympathise with the stomach than that the integuments should do so.

Our author now proceeds to notice some of the pains of the integuments of the head which are improperly called headach. "These pains are such as occupy one-half only of the head," and when they attend diseases of the symmetrical organs they are generally seated on the same side with the affected organ.

"First. There is a Hemicrania or a Heterocrania, which is periodical, returning every morning, at sun-rise, arriving at its height by noon, and remitting and ceasing about sun-set. This seldom lasts beyond the fourteenth day. But it may return every evening, or every night, and observe the same times: this, however, is very rare. A Hemicrania may also return at the same hour every other day, or every eighth day."

"Secondly. Another Hemicrania, which may return and be periodical, is a Neuralgia, or Tic douloureux."

When it is exactly periodical and returns without any evident cause, he suspects that it is complicated with an intermittent.

Thirdly. A Hemicrania may arise from a fracture of one of the tables of the cranium. "When the pain is fixed to one spot or returns always to the same spot," pressure of the integuments, if it is seated in the external table, and holding the breath and making an effort, if in the internal, will increase or renew the pain.

"Fourthly. A pain of one side of the head is very common to those, who during the winter, sit always on the same side of the fire;" "it may be occasioned by exposing the feet and" he thinks the "hands to cold," also by the cutting of a dens sapientia late in life.

Fifthly. A Hemicrania may be produced by exposing one

side of the head to the northeast wind during free perspiration, by pressure or the portio dura of the seventh pair of nerves, and by an inflammation of the ear.

“Sixthly. An exostosis on the cranium, from whatever cause arising, may occasion a pain on one side of the head,”

“Seventhly. A pain in half of the head has been traced to some disease of a cavity connected with the nostrils: the antrum Highmori.

“Eighthly. There is sometimes a pain on one side of the head, when the eye of the same side is inflamed.”

He then describes the nature of the pains which arise from inflammation of the different parts of the eye.

Ninthly. There is often Hemisrania when a foreign body is lodged in the meatus auditorius externus, or when from any cause it is the seat of inflammation.

Tenthly. A Hemisrania may be produced by pus collecting under the temporal muscle or under the occipito frontalis.

Our author's third chapter has the title of “Symptoms of Headach,” and is the most ingenious part of the whole book. After premising some truisms about “descriptions,” he introduces Araeteus, who he says “scarcely omits any symptoms that has ever occurred in disease;” he next presents to us another worthy ancient, Coelius Aurelianus, and at last brings in Celsus from whom he immediately procures those signs which that great man had selected as indicative of cephalaea. He then tells us that instead of giving us a description of his own, “he will make a short comment on those signs only” which he has received from Celsus.

“Celsus expresses himself thus: In capite interdum acutus et pestifer morbus est, quam κεφαλαίαν Græci vocant, cujus, notae sunt Horror validus, nervorum Resolutio, Oculorum Caligo, Mentis Alienatio, Vomitus, sic ut vox supprimatur; vel sanguinis ex Naribus Cursus, sic ut Corpus frigescat, Anima deficiat. Praeter haec, Dolor intolerabilis, maxime circa Tempora, vel Occipitium.”

“*Praeter haec*” entitles “*dolor intolerabilis*” to the first place in our author’s comments, but as he has in another place let us know what Celsus meant by the term, he now only tells us that “there is no more early sign than an *intolerable pain in the head*; and no more prominent, inseparable, and diagnostical sign, if a disease be a regular conjunction of symptoms, a whole indivisible from beginning to end.”

“*Horror Validus.*” Our author thinks that “no chillness attends it; no increase of heat, no greater frequency and fullness of the pulse follow it; that it is confined to the upper part of the body: which is in a profuse perspiration; and that therefore it depends, perhaps, upon a shock received in the very centre of the nervous system, which is instantly felt in its whole extent.”

“*Nevorum Resolutio.*” By these words he thinks Celsus meant, “as usual, a palsy;” and it seems to our author natural enough that such a horror as the above described when it is an ineffectual effort of nature, should be followed by a paralytic affection. He never saw an instance of cephalaea without palsy in some part of the body.

“*Oculorum Caligo,*” he takes “to be an expression of great extension, and to stand for almost every disorder of vision in which there is no organic change.”

Although Celsus does not notice the affection of any other sense than that of seeing, yet our author ventures to tell us that “hearing, smelling, and tasting, may all be affected in cephalaea.”

Indeed, he says, according to his experience, deafness is very common in this disease, and that according to Hippocrates if “slowness of speech, and torpor of the hand,” attend this deafness, we may expect apoplexy or palsy; if “eruginous vomiting,” we may look for insanity. He then gives a long and most poetical description of the “mental misery” which is produced by that degree of deafness which attends cephalaea.

As to taste he has often known it to be disordered in cephalaea in various ways.

“Morbid acuteness in smelling often precedes epilepsy.”
&c.

“*Mentis Alienatio*,” he thinks, means “an aversion to the intension of the mental faculties, and even the exercise of them.” “It is painful for the patient to think, therefore he avoids it.” He says that insanity and headach are incompatible, and that he never knew a case of the latter “in which the imagination was at all employed.”

“*Vomitus*.”—Our author admits that “cephalaea may have been a more desperate disease when Celsus saw it, than it is in our climate;” yet he thinks Celsus “can neither intend the antecedent to loss of voice to be the mere vomiting, nor the antecedent to coldness of the body to be the mere bleeding from the nose; but, in both cases, the conjunction of all the preceding symptoms.” He tells us that vomiting is frequent in cephalaea, at first of green bile, in the progress of the disease sometimes of black bile, but that spontaneous vomiting is a good sign.

“*Vox Supprimitur*.”—Our author tells of a great many ways in which the voice may be lost, but he owns that he cannot tell whether a patient in cephalaea “will not speak or cannot speak.”

“*Sanguinis ex naribus cursus*.”—This our author translates “a dribbling of blood from the nostrils,” because, he says, where Celsus speaks of a salutary bleeding of the nose, he uses “*profusio prorumpit, &c.*” He thinks this dribbling is a bad sign.” He says that “it has been known from time immemorial, that whether the blood trickle down, or gush out in a continued stream, if it be attended with a coldness of the body, or a cold and clammy sweat, it is a bad sign.”

“*Animae defectio*.” In his opinion Celsus means no more by these words than “that sudden diminution of the sensorial, the nervous, and the muscular powers, which is common to the end of all diseases of debility.”

Our author commences his fourth chapter with the consideration of the "kinds of headach." Every one of the epithets "bilious, nervous, spasmodic, gouty, &c. contains an hypothesis which he does not understand, and which he is persuaded no body else does. Of *bilious* headach. He thinks if bile is in the stomach, or in excess in the intestines, that vomiting in one case, and diarrhœa in the other, is produced, not headach. Bile, he thinks, never enters the blood because it "is never found in the lacteals;" "because jaundice arises sometimes in an instant," and is sometimes seated in a part of the body only, and it is often produced when the liver is not affected, &c.

Nervous headach.—Our author asks, what headach is not nervous, and how can that epithet be applied exclusively to any headach? It appears to him that in the commencement of most diseases, there is "an antecedent state of the nerves upon which that of the blood-vessels depends."

He says that a sympathetic may always be distinguished from a real disease of a part; for the "purely sympathetic disease of any part has no accedent symptoms—no epiphaenomena," &c. "but corresponds exactly with what ought to be the logical and diacritical definition of some real disease of that part."

Spasmodic headach.—He thinks that every headach being equally attended with spasm, is equally entitled to that epithet.

Rheumatic headach.—He thinks it is probable that rheumatism affects the dura mater; but he says, if headach be what he has defined it, it cannot be rheumatic.

He tells us that the predominant cause of headach may always be known by the existence of two signs, and sometimes that of one—which are "an imbecility in the head," and "a misshapen head." The signs of this imbecility are any "momentary or evanescent disorder" of the senses—any permanent disorder of the sense having reasons for study &c. About a misshapen head, he talks a great deal—he tells us that "a

headach has often been traced by the mere figure of the head to some remote progenitor, the predisposition not having been excited" in the intermediate generations. He is, therefore, very much in favour of family portraitures, and tells us that he has seen one which as a physician, he "considered far more valuable to the family than Le Brun's picture of the massacre of the innocent could have been."

Temperament.—He thinks that one temperament gives as much predisposition to headach as another, yet he believes that a predisposition to headach is connected with a less frequent systole of the heart, because "children whose pulse is frequent, are not very liable to headach."

"*Fevers* attended with congestion or inflammation of the head" may leave behind them a predisposition to headach. scrofula gives the predisposition to headach. He observes that persons with dark hair and a skin "not remarkable for fineness of texture," are subject to scrofula. "The women" whom our author has found most subject to headach, were the "arrogant," the irascible," &c. Syphilis and syphiloid diseases leave a predisposition to headach. He then tells us of a great many injuries of the head and their remote consequences, which produce predisposition to headach. And lastly, he speaks of the great difficulty in determining the seat of the cause of headach by post mortem examinations, and of the high and many requisites for a physician who treats headach.

Having shown the division of headach into bilious rheumatic, &c. to be hypothetical, and having spoken of the predisponent causes, our author "presumes that the reader has clearly seen that there are two kinds of headach;" cephalalgia, in which each succeeding paroxysm is less violent; and cephalaea, in which it is more violent. He then passes to the consideration of the occasional causes of headach. There are so many that he cannot "pretend to enumerate them all;" yet he presents us with a number sufficiently great to satisfy any one,

that scarcely any thing goes on, either in or about the human body which may not be the "occasion of a headach." He "premises, in order to avoid repetition," that impressions made on our organs of sense are the "occasions of sensations;" that the eye cannot hear, nor the ear see;" that we obtain our knowledge of external objects by means of our senses, and that we reckon five of these senses, although "some resolve these five into one, and others add a sixth."

"*Recollection, or active memory, or ready memory*, which depends upon the will of the individual, is a common occasion of headach." Under this head, he speaks at some length of "thought," "study," "education," "derangement of the mind," and the "reasoning of brutes;" passions—anger and grief most frequently occasion headach. Appetites—hunger, thirst, &c. also are frequent occasions of headach—desires occasion headach—so does "sensibility fostered preposterously."

Sleep, not in a recumbent posture, or at unseasonable hours, may cause headach. Here our author enters into a consideration of the cause and phenomena of sleep. Heat of the atmosphere, particularly in crowded rooms, may occasion headach.—"Headach from insolation" he advises to be treated by prompt and large depletion, and by cold applied to the head. "Cold applied to any part of the body may occasion headach, on which account "headachs are most frequent in winter."

Hair of the Head.—Headachs are sometimes cured by shaving it off, and sometimes they are produced by baldness.

The *Skin* and mucous membrane absorb many of the substances to which artists, mechanics, &c. are exposed, and become the occasion of headach.

Carbonic acid gas and vapour of burning charcoal may occasion headach.

Shoemakers, Tailors, &c. who lean forward and compress the abdominal viscera, are very liable to it.

Stays may occasion headach; metastasis of a great variety of diseases is the occasion of headach—convalescents are very lia-

ble to headach from being "crammed with delicacies," or from stimulant medicines.

Beer, wine, brandy, &c. often occasion headach. Amputation of a limb may be followed by headach, "if there is a predisposition to it."

Our author "next speaks of those affections of the thoracic, the abdominal, and the pelvic viscera, which may occasion a headach."

Lungs.—A headach may be occasioned by disturbed respiration from any cause. He "knew one who died, while he was in a dance, as suddenly as if both his phrenic nerves, and his spinal marrow at the lower part of his neck had been divided." Coughing and laughing are frequent causes of headach.

The Heart.—Increased action and hypertrophy of the heart, never occasion headach, nor do they ever produce a predisposition to it.

The Liver.—Many of its diseases occasion headach.

The Stomach.—Our author describes the whole process of digestion. "He says, the headachs referred to the stomach, which I shall notice, are independent of any organic disease, as scirrhus, cancer, stricture, &c. Indeed, I am not certain that organic diseases of the stomach ever excite a headach."

"The first headach is that from over-distension of the stomach, in a person in good health." The second is occasioned by hunger in a healthy person when he abstains from eating a longer time than usual.

The third is that which is traced to a weak stomach when empty. To remove this state of the stomach he advises the use of flannel and "dejection at regular hours of the day," and when necessary, *sulp: magn: spontaneous vomiting* is always followed by relief, but that excited by emetics never.

The fourth is that headach "to which the chlorotic and the hypochondriac are peculiarly liable, which comes on with a pain of the stomach not immediately after taking food, but

as soon as digestion begins." He advises calomel at bed-time, with a saline purgative next morning, twice a week, and during the pain some grateful aromatic; also the mixture a ferri composita, and a blister applied to the epigastric region, or to the back. The best diet is broiled meat; no broths should be taken; the beverage should be pure water, and exercise in the open air should not be omitted for a day.

The fifth is that headach in which the patients "have no appetite for ordinary food, and therefore seek for condiments." The pain generally extends to one of the eye-balls, it is attended with heart-burn, disagreeable eructations, &c. "This state of the stomach" is to be relieved by a vomit, and after it daily, sulphas magnesias in peppermint-water. "To cure the disorder," calomel should be taken in small doses every night, if necessary, with gentle laxatives, and "to support the strength," cinchona, columba rhubarb, &c. should be used; diet as in the fourth headach.

The sixth is occasioned by worms irritating the stomach.

The duodenum from indigestion may occasion a headach.

The rectum,—stricture of this intestine and impacted fæces in it may occasion headach.

The kidneys, &c.—ischuria renalis and ischuria vesicalis, are often attended with headach.

The ovaria, uterus, and mammæ;—our author considers, "not the uterus, but the ovaria, as the cause of headach, connected with menstruation," and then goes into a long discussion of menstruation.

"Pregnancy," "cessation of menstruation," diseases of the "ovaria," and of the "male testes," all occasion headach.

Our author's last chapter has the title of "Cure of Headachs."

Assuming that a headach is what "he has defined it, and also that there are two kinds of headach, cephalalgia and cephalaea, in which either the whole head, or only

one-half of it is in pain, the first inquiry is whether the disease be sympathetic."

It is easy in hermicrania to distinguish a sympathetic from an idiopathic headach, "for we may search after the part with which the brain sympathises on the same side of the body." "When a pain in the head is sympathetic, it is cured by removing the disease of the part, with which the head sympathises." "It is the property, however, of a sympathetic headach to occasion either a partial, or a general distention of blood-vessels in the head." In the partial distention, "when there is an undue circulation and distribution of the blood," the sensibility is increased. In the general distention the sensibility is nearly destroyed, the pupils dilated, and limbs relaxed, &c.—"Therefore if the headach increase, and the sensibility of the body also increase," the disease has become idiopathic, and new symptoms can be traced to it.

Here our author presents us with "the outline of a hypothesis of cephalalgia." There must be a distinct predisposition to the disease. This predisposition seems "to consist in a peculiarity of structure in some part of the cranium." This peculiarity is either congenital or acquired from diseases or injuries, from which patients are said to have recovered.

Having spoken of some of these peculiarities, he now directs our "attention to that which is common to them all; such a distribution of the blood as differs from that in the generality."

This peculiar circulation within the cranium is compatible with the exercise of all the faculties of a person liable to cephalalgia, but this peculiar circulation, "in any part of an individual, is more easily disturbed than a circulation which is common to that part in the species."

This disturbance gives the predisposition to the disease, and when it becomes somewhat permanent, cephalalgia arises.

But this disturbance cannot be permanent without an unusual "occasion acceding." These occasional causes are proba-

bly "all such as act by producing a debility and dilatation of some of those blood-vessels within the cranium, in which the predisposition to cephalalgia consists."

Dilatation of blood-vessels in inflammation is preceded by that of the capillaries, but in headach it is not, so that in the latter there is no fever nor acceleration of the pulse.

Pains depend as frequently upon a defect as upon an excess of stimuli; as in headach preceding fevers, in that after great loss of blood, in that of feeble persons, &c. A headach often follows, but never accompanies an accelerated action of the heart and arteries. Cephalalgia may therefore be induced directly by causes that occasion a diminished action, and indirectly by those which give rise to increased action, "the action in either case is through the nerves of the arteries. Perhaps the blood itself, as well as the arteries containing it, is under nervous influence."

This hypothesis of cephalalgia, our author thinks may "mutatis mutandis, explain all the phenomena of cephalaea, considering by what a number of facts, generalised by induction, it is proved, that in the seat of the predisposition to this headach there is a tendency to disorganization, or an adventitious part of a malignant tendency deriving its nourishment, parasitically, as it were, from some original part next it, but living and increasing by its own peculiar powers."

Treatment of headachs.—Not only may the same means relieve one and increase the other in cases of cephalalgia and cephalaea, which resemble each other, but in similar cases of either, the same means diminish one and exasperate the other. Even in "different cases of cephalalgia, I am persuaded, that a degree and kind of stimulus may cure one, which increase another; and that I shall not err much, if I lay it down as a fact, that in every case of cephalalgia, debilitated and distended blood-vessels are to be made to contract by stimulants proportioned to their debility; and in every case of cephalaea, a specific action is to be diminished, and the means of restoring the natural action are to be employed."

“ *Of Blood-letting.*—The most common remedy in all pains of the head, is blood-letting; as if the head contained a quantity of blood greater than usual.”

“ A pain in the head is often attended with a plethoric state of the body: but it does not follow that there is then an accumulation of blood in the head. Yet, if the body be plethoric, as it may occasion pressure on the brain, blood-letting is necessary. But a person may be thought plethoric, when he is really not so, and when his constitution does not easily bear a loss of blood. Therefore, blood-letting, which has a tendency to increase the disposition to plethora, and to render its own repetition necessary, should not be had recourse to without the utmost caution.”

A headach from sympathy, as that from suppression of the menses or from metastasis, as that from suppression of hæmorrhoids, is increased by leeches applied to the temples, or by venesection of the arm, but quickly relieved by drawing blood from the neighbourhood of the parts originally diseased. Although blood may be drawn when there is too much in circulation, yet when there is *merely* an irregular distribution of it in some part of the head, blood-letting aggravates and prolongs the headach. It however excites a contraction of the vessels, and may sometimes be used.

Arteriotomy.—Our author has never known any advantage from this remedy, but he has seen sudden and alarming increase of that debility evident in all headachs.

“ *Phlebotomy.*—If a pain in the head occur in a plethoric person, he should lose blood from his arm.” If not plethoric he should not lose blood at all.

“ If a pain in the head be sympathetic, whether the patient be plethoric or not, he should be bled from the part with which the head sympathises, or from as near this part as possible.” Perhaps after this, if the headach continue, it may be proper to draw blood from the head, as the “brain may begin to be compressed or irritated;” but this should

only be done to produce contraction of distended vessels, and to restore the natural circulation through the brain, and should not be carried to the extent of fainting or great debility.

Purging.—This is another mode of producing contraction of the dilated vessels, and of restoring the natural circulation of blood through the brain.

“It is in vain that the attempt is made to cure a headach, if the bowels be loaded with indurated fæces, and if the secretions into them be suspended, diminished, or vitiated.”

In protracted headachs, as there may be “a coacervation of fæces retained in the rectum,” even after blood-letting and repeated purging, he always orders “an ounce of soft soap dissolved in a pint only of water, to be slowly injected into the rectum.

Vomiting.—Our author has known vomiting to remove a cephalalgia, “not a cephalaea.” It is dangerous in headachs of old persons, and should always with them be preceded by blood-letting.

“*Pediluvium.*—The pediluvium is most efficacious after bleeding; it should be hot enough to redden the skin; and it should be employed for half or three quarters of an hour.”

Drinking of hot Water.—Of this remedy he has no experience.

Hot or cold Water on the Head.—The latter our author has often known to be efficacious, but not the former.

Sweating.—He has employed dec. sarsap. comp. with great success.

“*Compression.*—When it relieves a headach, it must be I should think, by determining more blood to the inside of the cranium, and by so increasing the momentum of the blood in the internal carotid artery, as to bring about a contraction of diluted vessels.”

C. of the Carotid Arteries.—Sometimes relieves a headach which is kept up by a general plethora.

“*Blisters.*—Blisters, issues, setons, and tartar emetic oint-

ment rubbed into the scalp, bring blood to the surface, and lessen the irritation within: but I do not think they cure a headach in this way; but by exciting the dilated vessels to contract."

Oleum Succini,—Rubbed on on the spine, "is said to have cured a headach."

Inustion, Moxa.—The same may perhaps be said of these as of blisters. Our author has no experience in the use of them.

"*Internal Remedies—Tonics*.—Cinchona, sulphate of quinine. These are certainly powerful remedies for headachs, especially for such as are periodical.

"*Antispasmodics*.—Opium, æther, assafoetida, valerian, camphor, and camphor with extractum hyoscyami. These quiet nervous irritations attending headachs, and sometimes headach itself.

"*Tiglii Olum*.—A drop or two of this oil on the tongue is said to have cured tic douloureux."

Our author has not thought it necessary to point out such of the above remedies as are "exclusively applicable to cephalalgia or cephalaea;" he proceeds, "however, to consider briefly, what is to be done in cases of cephalaea."

One cannot entertain a hope of curing this disease and ought to be cautious in giving remedies. Some of these employed in cephalalgia cannot retard the increase of the predisponent cause of cephalaea, and others may hasten it. Such powerful means as are salutary in the former are dangerous in this. In one there is "mere morbid action, in the other disorganization from a specific cause." Ossifications within the cranium. A headach may derive its predisposition from them and yet not be a cephalaea, for tumours, when forming in the head, may occasion long continued headach, and yet when they have ceased to enlarge, they may also cease to cause pain. "Ossifications have been found within the skull of those who never had a pain in the head."

Enlarged tumours deep in the brain, may lie innoxious as a bullet sometimes does in a muscle.

Effusions and extravasations after symptoms of compression and irritation cease, never leave a predisposition to headach.

“Lacerations of the brain healed by the adhesive process do not always give a predisposition to headach.”

A predisposition to headach, induced by a venereal disease has no doubt been removed by the use of mercury, but dispositions under the periostum, &c. resembling venereal affections have been caused by its use.

Our author thinks that an effusion of two or three ounces of water in the brain is not the consequence of headach, nor to be considered as a morbid phenomena, unless signs of acute hydrocephalus preceded death. If a person have had scrofula when young, or have hæmatodes in any part of the body, then a constant headach may suggest that such a disease is going on in the head.

“In every case of cephalæa, it is a good rule to diminish the specific action, if this be possible; at least not to increase it. By strictly observing this rule, if we do not cure the disease, we favour the return of the natural action of the part which is its seat.”

ART. VI.—*A Treatise on the Effects and Properties of Cold, with a Sketch Historical and Medical of the Russian Campaign.* By MORICHEAU BEAUPRE, M. D. Regimental Surgeon in the French Service. Translated by JNO. CLENDINNING, A. B. & M. D. Edinburgh, 1826.

THE claims of authors on the reviewer, are of a tripple kind. They rest either on the value of the facts presented, as the result of their observation; on the judicious arrangement of these facts; or, on the ingenuity or logical accuracy with which they draw their inferences from them. Experience, judgment, and genius, may be here said to constitute the three feet of the tripod on which alone the fame of a writer

can sit securely and permanently. Remove either, and though he may not necessarily *fall*, he will cease to occupy an upright position. To the medical writer, the first is unquestionably that which will sustain him longest,—he who possesses an experimental knowledge of the topics of which he treats, resting his reputation on the memory and reason of his readers—while he who can do nothing more than compile from others; or, he who wildly speculates, is deserving of little more in the first case, than the credit of performing a service which every thinking mind will, after all, perform for itself; and in the second, of merely yielding food for amusement to those who may deem his fancies worthy of attention. Varying, however, from each other in value, as do these three ingredients of respectability in authorship, all we repeat, are necessary in a greater or less degree, to entitle him who ventures before the public, to the meed of praise to which he aspires, and which every liberal reviewer would cheerfully, when he may *justly*, award to him.

To what extent the work now before us may be found endowed with these qualifications, we shall leave to our readers to decide, as it is our purpose rather to present an analysis of its contents, than a critical examination of them. The author, as we are informed in the translator's preface, served under Napoleon as Regimental Surgeon in Italy, Germany, Poland, Russia, &c. United with the army of that great but misguided conqueror, in his march to Moscow, and in his calamitous retreat from the ruin in which his invasion had involved that splendid city; opportunities could not be wanting to Beaupré, or to any of his fellow surgeons, of observing the peculiar influence of *cold* over the animal system. Whether these opportunities were properly improved or not, can only be determined by a perusal of the volume. As far as our sketch extends, it will be found to justify us in recommending such perusal.

A general outline of the arrangement we quote from the translator's preface.—He divides his work into nine chap-

ters, of which the 3d, 5th, 7th, and 9th, are the leading ones—In the 3d chapter he considers cold physiologically. In the 4th chapter he gives a rapid sketch of the Russian expedition, the most gigantic, unhappy, and instructive of modern times. Our author was taken prisoner at the passage of the Beresyna, and remained some time in captivity. In the 7th chapter, he answers the query, how many different indications may cold be employed to fulfil? He points out seven modes of acting on the organism; in other words, seven therapeutical effects which cold is capable of producing when properly employed. Those modes of acting he calls “properties of cold,” distinct from each other, although so combined, that in general without considerable address, or else good fortune, no one of them can be brought into operation, so that its effects can be observed altogether unmixed with those of more or fewer of the rest. The 9th chapter, comprising more than one-third of the volume, he devotes to the therapeutical history of cold. In this chapter, instead of choosing the arrangement best calculated to illustrate his views, as to the varied operations of cold, he has imitated preceding writers in adopting a nosological order (similar in this case to that of the “*Nosographie Philosophique*”) which seems to have no advantage, but that of facility to the author. In addition to this hasty expose of the course taken by the author, the translator furnishes us with an appendix containing notes which “are, for the most part, either intended to strengthen some positions of the author, which appeared to need farther evidence, or as *riders* on clauses in the original, containing decisions too exclusive and unqualified. The latter consists principally of facts from obvious sources, evincing the necessity of restricting the textual positions to which they relate.”

With this preliminary notice, our readers will be able to follow us from chapter to chapter of the work, and to form some judgment from our selections and remarks, of its value.

In the first chapter, the attention of the reader is called to

nothing new. It is appropriated to a few general observations on caloric, referring chiefly to the mode in which it is generated within the system, and to its stimulant influence as one of the most common supporters of life. Several physiological remarks are also made on the causes which may lead to the vast diversity existing in the susceptibility of different individuals, to the impressions of this universal agent. The capacity to endure an excess, and likewise the inconveniencies of a deficit of caloric, are also noticed.

On this subject, the author makes the following trite observations in concluding his chapter. "The quantity of caloric proper for the support of life and of the equilibrium of health, is always moderate." "In medio tutissimus ibis," is doubtless no less important a maxim, when the heat of our bodies is in question, than when our moral conduct is concerned; yet we do not find it of sufficient force to impel us to add to our quotation the additional views of Dr. Beaupré touching the pernicious consequences of too powerful excitement from "external accumulation, or from preternatural increase of animal heat, owing to morbid exaltation of the vital movements, &c. &c." The case recorded by him in his note, page 11, illustrative, as he conceives, of the "sudden decompositions of the mass of the blood,—that rapid dissolution of the organic elements, that occur from excessive and prolonged heat,"—we may recite in the author's own language, and leave our readers to form their practical opinions on its nature and treatment, without forestalling their judgment or doing violence to their hypotheses.

"Towards the end of July, 1811, during my evening visit, there was brought to the Military Hospital of Treviso, a Dalmatian soldier, twenty-six years old, who, by his comrades' account, had suddenly fallen senseless on the rampart where he had been two hours on guard, exposed to the whole power of the sun; in that condition he was found when they came to relieve him. I examined him, the extremities were almost as warm as in the natural state; the face pale and tender; there

was total loss of motion and feeling, black dissolved scorbutic-like blood flowed from the nasal fossæ, which I immediately plugged up (!) In separating the jaws, I perceived not only the cavity of the mouth filled with blood, but also the whole mucous membrane of the lips, gums, cheeks, and tongue, chequered with livid spots, resembling nothing more strikingly than scarbutic spots. I found the belly somewhat inflated, and the hypogastria distended; I introduced a catheter (quare?) and there came out at least a litre and a-half of black blood, mixed with urine; the pulse was small and very feeble. I had a *fo-mentation* of cold water immediately applied to the abdomen; I prescribed a potion of decoction of cinchona, tincture of cannella, and sulphuric acid, with alcohol; I had, besides, blisters applied to each of the extremities. The patient (as might have been expected) *died* six hours after entering the hospital. On dissection, I found the bladder filled with putrid, fetid blood; the whole extent of the mucous membrane of the nose, pharynx, œsophagus, stomach, intestines, and bladder, presented the same livid spots as the inside of the mouth; the putridity of the corpse rendered quick burial necessary. The information I procured respecting that soldier, showed, that he had not been sick, and had ever during his whole time with the army enjoyed perfect health."

We fear the relation of this case will be calculated to impress our readers with no very high idea of Dr. Beaupré's skill, either in the art of recording, or in that of physic. That he may not sustain injury from this cause, we therefore proceed to a notice of the contents of his second chapter. In this he treats of cold in general—supplies us with his own definition of the term, in which there is nothing peculiar—notices the influence of habit in enabling individuals to endure almost to any extent the privation of caloric, and enlarges on the diversity met with among the inhabitants of different regions, in their susceptibility to the impressions made by cold arising out of their locality, and the varying conditions of their systems. The influence of the mind over the body is

also spoken of under the same head; and as the following paragraph on this subject, may serve as a specimen of the author's style when he appears more than usually excited, we present it to the reader.

“Facts not less curious than surprising, evince that sensibility is diminished by every thing that effects, or strongly engages the feeling principle; the continued and obstinate direction of the intellect and passions towards any one object, such as that caused by a strong affection, by political fanaticism, or military, or religious, by grave and serious occupations, by impassioned attachment to art or science, &c. while it concentrates the sensibility, renders the body inaccessible to the various external impressions, and even to the action of cold. An instance has been mentioned of a fanatic who made for himself a bed of snow to mortify his flesh. It has not been very rare to see persons plunged in profound meditations remain insensible to the keen darts of an excessive cold. The lover who but that he burns with passion, would tremble for cold, bears the rigour of a freezing night, watching till the delicious moment of meeting. The fashionable lady, lightly clad as in the warm days of summer, fully possessed with the desire of pleasing, and the brilliant effect of her finery, endures, without complaint, a temperature which under any other circumstances, would make her shudder, and often receives the arrow of death without perceiving it. The indefatigable hunter forgets every thing for the satisfaction of his passion; we see him expose himself to the piercing north-east wind, in the depth of the rudest winter, plunge into icy marshes, impatient to surprise the aquatic bird; he traverses the valley, cold and wet, penetrates the woods, amongst the brambles, in pursuit of the timid hare and nimble roe-buck. It is of him Horace has so gracefully sung:

‘Manet sub Jove frigido,
Venatar, teneræ conjugis immemor.’

“Figure to yourself again, Charles XII. asleep at midnight in December, on straw or a plank, at the siege of Frederickshall in Norway, there as in the Ukraine, you see him insensible to

the assaults of the freezing element, and entirely absorbed in his plans, his projects and his situation.”

This we think will suffice to satisfy our readers of the manner both of the author and the translator. To the matter of the former we shall now confine ourselves, as of far more importance than his diction.

The division of cold into real and sensible, may serve to render the after observations of the author more intelligible, and deserves therefore to be adverted to:

“Real cold is produced by an external cause, viz. by the air and other bodies whose temperature is much lower than that of the blood. All healthy individuals feel and appreciate its effects; it must be considered as either absolute or relative. It is absolute after the temperature passes below 32° . In this case no doubt zero is a conventional term, for there is still caloric remaining; there is therefore physically speaking, no absolute cold or total absence of caloric; but waving the precision of physical logic, we shall regard cold from 54° to 32° and below, as absolute, in respect to its active and permanent power over the body, whose natural temperature it tends to repress. Relative cold is always proportional to the greater or less difference of temperature that exists between our bodies and refrigerating agents. We experience its action in passing from heat to cold; or infinity of causes that effect sudden refrigeration of the atmosphere, as an icy north wind blowing suddenly in summer—the formation of snow or ice, cold rains, storms, extreme coldness at night, succeeding burning heat by day, produce this relative cold.

“Sensible or morbid cold is what most affects the sick; it does not belong to the doctrine of real cold, since it is exclusively the effect of the modification or alteration of the vital properties. Of this nature is that which accompanies the neuroses, and which likewise shows itself at the beginning of continued, remittent, and intermittent fevers; it is not relative to the season; the patient feels it in the midst of summer, or in winter, in a well heated room, and beneath a load of bed-clothes.”

The division of what is called real cold is further extended by our author to that which is dry, and that which is humid, but it is not necessary for us to follow him through all the minute ramifications of his arrangement. The next chapter is calculated to interest the medical reader more than the foregoing; and shall therefore receive a proportionate share of our attention. It treats of the “effects of cold on the animal economy,” a subject alike important in a physiological and practical point of view. The suggestions with which it commences on the doctrines of the Brunonian school, respecting the influence of cold, will serve to show in part the ground our author intends to occupy in the examination of the question; “is cold tonic or debilitating in its effects?”

“If” says he, “Brown and his disciples had taken the trouble of analyzing, in every point, its action on man, they would have been induced to acknowledge, that the debilitating effects which they attribute to it above all, occur only when it is excessive in degree or duration, and moreover aided by concurrent causes. It is from not having divided cold into moderate, rigorous and immoderate,—from not having considered man in repose, and in motion,—from having regarded cold as an agent isolated from re-action, and having neglected to ascertain the share due to the different states of the body respectively; to that condition of the powers, which always supposes energy or debility, the possibility or impossibility of the re-action, that the Scotch physician has, as we think, pronounced a judgment too exclusive.”

To avoid the defects here alluded to, our author presents us, in the first place, with a very accurate and well drawn picture of the effects of cold on the entire frame of a healthy and vigorous man; after which he treats of them under the following distinct heads: 1st, Sensation; 2d, Abstraction of Caloric; 3d, Stimulus; 4th, Contraction; 5th, Spasm; 6th, Re-action; 7th, Benumbing; 8th, Condensation of fluids.—To trace the impressions made by the agent under notice, through each of these steps, is far from being easy, at any time, and

it is often impossible; yet we cannot deny that “the particular examination of each may enable us better to appreciate the powers, salutary and noxious, of cold over man in the state of health, and to attain to the distinguishing of its properties.” All other attempts to analyze and arrange the phenomena produced by a cause so powerful, and in a system so complicated, amount to this, and to no more. They serve to supply us with heads of chapters and sections, and on this account may be deemed both convenient and useful, when not made under the belief, that we are establishing a systematic order of things which nature herself will sanction. We do not know whether such a belief influenced the translator of the work before us, or not, in presenting in his appendix the following tabular view of the effects of cold. If so he has, we conceive, fallen as far short of his mark, as he has in his attempt at translation. But on this subject we shall have more to say when we have done with our *author*. We annex the representation as peradventure some one of our readers may be edified by it.

<i>Abstraction of Caloric.</i>	<i>Re-action.</i>	Sensation, (Nervous System,)	<i>Asphyxia.</i>	<i>Torpefaction or Numbness. Irritability. Quiescence or Sedation.</i>
		Irritation, Spasm, (Muscle,)		
<i>Abstraction of Caloric.</i>	<i>Re-action.</i>	Excitement, (Capillary System.)	<i>Asphyxia.</i>	<i>Torpefaction or Numbness. Irritability. Quiescence or Sedation.</i>
		Abstraction or Shrinking, (Cutaneous and perhaps other Tissues.)		
		Refrigeration; (Condensation of Solids and Fluids, and more or less complete suspension of the Chemical operations ne- cessary to life.)		
				<i>Congelation.</i>

Our author pursues still further the analytic examination of the influence of cold, by a notice of its effects in the several sub-sections of the general system, the cutaneous, respiratory, digestive, &c. We shall attempt a brief summary of his observations, without adhering strictly to his text. The im-

pressions made by cold on the skin are traced from those which are more obvious and common, to those which are produced only by its long continued and most intense action; from the desirable beautification of the face of the fair lady, and the removal of the wrinkles of the aged matron, to the ulceration and gangrene produced by it in those who have been long exposed to its pitiless power. Between these extremes, however, lie numerous effects, which are observable during our winters, and which it becomes the practitioner to bear in mind. Among these we notice chilblains, the pain excited in the neighbourhood of cicatrices, and the injury inflicted on ulcerated surfaces, by applications of an immoderately low temperature. We agree with the author in deprecating the employment of extremely cold topical remedies for sores, yet we think equally strong objections, and even stronger might be advanced against the common and indiscriminate use of warm applications in such cases. The case referred to by the author, of the *four minutes* convulsion, trembling, and trismus, occasioned by a dressing of cold cerate to a blistered surface, is just such a one as every nurse has seen, when the temperature of her dressings has been either too high, or too low. The section on absorption contains nothing original, although it comes before us with the front of novelty. The amount of it is that the skin absorbs fluids, and that cold diminishes its power to do so. The proofs are given in the following laconic and convincing note.

“Cutaneous absorption is produced by holding a new-born puppy for a-quarter of an hour in warm ink, the urine made afterwards is coloured. This simple experiment will serve equally to ascertain the effect of cold on absorption; it is but keeping the animal in cold ink an equal time. It will be proper to move him about in it, lest he become benumbed.”

To comment on this would be inconsistent with our plan, as we cannot enter into a full discussion either of the doctrine or the mode of sustaining it, adopted by Dr. Beaupré.

The only effect produced by cold on the digestive system

insensible and ignorant where they went. Scarcely could you succeed in making them understand a few words, they had almost entirely lost the use of their senses. In a word when, no longer able to continue walking, having neither power nor will, they fell on their knees. The muscles of the trunk were the last to lose the power of contraction. Many of these unfortunates remained some time in that posture contending against death. Once fallen it was impossible for them with their utmost efforts to rise again. The danger of stopping had been universally observed; but alas! presence of mind and firm determination did not always suffice to ward off mortal attacks made from all directions, against one miserable life.* It happened to me three or four times, to help some of those unfortunates who had just fallen and begun to dose, to rise again, and set themselves in motion, after having given them a little sweetened brandy. 'Twas in vain; they could neither advance nor support themselves, and they fell again in the same place, where they were of necessity abandoned to their unhappy lot. Their pulse was small and imperceptible; respiration, infrequent and scarcely sensible in some, was attended in others by complaints and groans. Sometimes the eye was open, fixed, dull, wild, and the brain was seized by quiet delirium; sometimes the eye was red, and announced transient excitement of the brain; there was then more marked delirium. Some stammered out incoherent words; others had a reserved and convulsive laugh. In some

* "I shall here record a circumstance, to which I probably owe my preservation. During the frightful night that we left Smolensko, I felt much harassed; towards five in the morning a feeling of lassitude invited me to stop to rest. I sat down on a trunk of birch, beside eight frozen corpses, and soon experienced an inclination to sleep, to which I yielded the more willingly as it then seemed delicious. I was fortunately dragged out of that incipient somnolency, which would infallibly have brought on torpor by the cries and oaths of two soldiers opposite, who were striking violently a poor exhausted horse who had fallen down. I emerged from that state with a sort of shock. The sight of what was beside me, recalled strongly to my mind the danger to which I exposed myself; I took a little brandy and set to running, to remove the numbness of my legs, whose coldness and insensibility were such as if they had been immersed in an iced bath.

blood flowed from nose and ears; they agitated their limbs as if groping. It has been given out that some soldiers, from phrenetic delirium, had gnawed their hands and arms. I take the liberty of doubting it. The nervous symptoms that accompanied death by cold, when lingering, may have deceived those who say they have seen it. I have observed men overpowered by cold; I have seen them uncovering their breast, agitating their arms, as a sick man labouring under deaf delirium in an ataxic fever. In that state they certainly no longer felt desire of food; besides, the spastic pressure of the lower against the upper jaw was constant in most, and only increased with the progressive effects of the cold which caused torpor and death.

“Thus have thousands perished. Most of those that escaped the danger fell sick ultimately. In 1813, a number of soldiers more or less seriously injured by cold, filled the hospitals of Poland, Prussia, and Germany. From the shores of the Niemen, to the banks of the Rhine, were easily recognised, in their persons, the fragments of an army immolated by cold and misery the most appalling. Many, not yet arrived at the limit of their sufferings, distributed themselves in the hospitals on this side the Rhine, and even as far as the south of France, where they came to undergo various extirpations, incisions, and amputations, necessitated by the physical disorder so often inseparable from profound gangrene, and from sphacelus.

“Mutilations of hands and feet, loss of the nose, of an ear, weakness of sight, deafness, complete or incomplete, neuralgia, rheumatism, palsies, chronic diarrhœa, pectoral affections, recall still more strongly to those who bear such painful mementos, the horrors of this campaign.”

The observations of the author on asphyxia, gangrene, and death, from cold, contained in his fifth chapter, will be found in many respects practically useful. He divides asphyxia into partial and general, and arranges the various phenomena presented by it under three several heads or degrees.

“*First Degree.*—The action which is felt through the whole body, is rendered more manifest on one of the parts habitually exposed, or not sufficiently defended. The alteration of the

vital properties begins with distressing and very painful formation. The skin of the extremities of the fingers, nose, ears, &c. after having been for a long time red, hard, and affected with painful prickings, grows pale; its temperature and sensibility diminish; its vitality seems entirely extinct. Local numbness gradually takes the place of a disagreeable sensation, of which the person is glad to be relieved, and the consequence is, that he is unfortunately unaware of his state.*

“*Second Degree.*—After entire cessation of pain, the part remains cold and insensible; sometimes phlyctenæ arise; sometimes the change of colour in the skin, which is livid and blackish, evinces, from the commencement, that there is mortification.

“In both of those first degrees of local asphyxia, re-action, which supervenes infallibly, is announced by lively smart pain, as well as by redness of the skin. It is salutary when moderate; but it is not without danger when too impetuous, or when concentrating its action too decidedly on one point. Whether the energetic return of sensibility and contractility be provoked by external heat, or caused by the force of the constitution, the effect is the same; the blood and humours flow into the dilating tissues, and these occasion circumscribed distention; in the whole part an insupportable formication and itching are experienced; sometimes the pain becomes so sharp as to drag forth complaints and cries; ardent inflammatory action is established,

* “The cessation of pain, or abolition of all vital re-action, augurs in some cases as ill as that which in inflammation denotes transition into gangrene; but fortunately a very simple remedy employed in time prevents that fatal termination. I perceived one day on a journey, that two officers, prisoners of war, and my companions in misfortune, had the points of their noses of a horn white, the colour of old wax. I warned them, and friction with snow were sufficient to remove this first stage of congelation, which they had not suspected; but what appeared to them very singular was, that while I gave them advice, I myself needed the same; my nose was in the same condition: *sibi non cavere et aliis consilium dare*; from that moment we were on the alert; we kept on our guard, and that we might not fall victims to a security alike fatal and involuntary, each begged his neighbour on terms of reciprocal service, to watch over his nose and ears.”

along with sharp and biting heat. When the skin, at the highest degree of re-action, preserves an equal redness, there is much less reason to fear its passing into gangrene, than when it assumes a livid or violet marble colour. In the second case, the epidermis rises here and there, and forms brown or blackish vesicles, which are filled with a serous, bloody, ichorous or yellowish fluid, whose presence increases the disagreeable and obtuse sensation felt in the part, and which causes even a state of uneasiness. I express what I have experienced in Russia; in January, 1813, I had to support the rigour of the icy north-wind, for six hours, on horseback. I braved the sharp and cutting pain which I felt at the ear of the side on which the wind blew; it subsided at last, but the part remained cold and insensible. On my arrival at home, I was so benumbed that I could not use my hands, and descended from the horse all at once; I did not feel even the ground on which I rested. The inexpressible uneasiness which deprived me of power, and the desire and impatience to be warmed again, made me neglect the wise precaution of friction with snow. I entered an apartment moderately warm, the pleasant temperature of which would soon have re-animated me; but I quickly experienced, in the lobe of the ear that had suffered most from cold, an obtuse disagreeable sensation, quickly changing into sharp expanding itching pain; the ear swelled, and in less than fifteen minutes acquired double its natural volume; the orifice and depressions were almost effaced; the pain became lacerating, and the heat burning; some large black phlyctenæ were formed, which, when perforated, discharged serous fluid. I was pretty soon relieved, after having the suffering part annointed with fresh goose grease. That remedy was recommended to me by a Swedish lady, as much used in her country, where that sort of accident is very common. I got off with a superficial ulceration.

“The disorder is not confined to simple elevation and fall of the epidermis in layers or by desquamation; it extends also into the interior, which constitutes properly the second degree of local asphyxia; the cold attacks and kills the mass of the skin, the tendons, or the aponeuroses; gangrenous eschars are formed

of more or less extent, which are quickly surrounded by an inflammatory circle.

“ *Third Degree.*—This constitutes sphacelus. If to paleness and insensibility of the part seized by cold, be added total cessation of organic action, and a feeling of weight which to the patient seems very great; if an easy separation of the epidermis disclose a livid marble colour of the chorion, and if to the softness and flaccidity of flesh which is insensible to stimuli, succeed exhalation of a putrid odour, we can no longer doubt respecting the complete sphacelus of the limb or part. It is the same dangerous affection which sometimes produces spontaneous separation of fingers, toes, feet, or even a whole member.

“ The stupifying action then of cold benumbs so far the vital properties, as to give to the part asphyxiated the appearance of death. But even when every symptom seems to confirm it, there is still time to re-establish its temperature, and recall its motion and feeling.

“ It would here be very dangerous to apply the axiom, *contra-ria contrariis medentur*. It is only in case of very slight numbness, that we can, without inconvenience, employ a gentle, moderate, graduated heat to dissipate it, or make gentle friction with woollen cloth. When, on the contrary, there exists profound stupor and suspension of all motion in the part, heat is unsuitable; its imprudent application would be sufficient to cause rapid gangrene, by making the part undergo a too sudden change of physical condition, which it is not in circumstances to bear. On the other hand, caloric, by its repulsive property, rarefies the juices condensed and stagnant in the inert vessels; the latter are distended, and owing to their incapability of re-acting against the expanding fluids, are ruptured; the juices are infiltrated; the tissues are choaked up; rupture of the skin and cellular tissue take place, and irreparable disorganization leads inevitably to gangrene and sphacelus. Hippocrates very well knew that heat was noxious to limbs asphyxiated by cold. He relates, (*de liquidorum usu*) that a man who had his feet frozen, lost them after having had warm water thrown upon them. I have been two or three times witness to the quick passing of

partial asphyxia into gangrene, in soldiers who placed their limbs very near the fire, to warm them more quickly.

“The true method consists in slowly exciting re-action, gently recalling the vital properties, and preventing their too rapid restoration. It is proper to begin the application of means efficacious in such cases, on the confines of the asphyxiated part; afterwards it is to be made general, so that frictions with snow or ice are to be employed, or with a sponge soaked in cold water, or the part itself must be immersed in the water: the use of cold, to counteract its own benumbing effects, is a remedy well known, and I may say popular in the north.

“I consider frictions with snow or pounded ice as preferable to all other means, because, besides the peculiar stimulus which those substances prove to the part after recovering a little its sensibility, they exercise likewise a mechanical irritation, which is not, I think, without efficacy in re-animating the contractility of the fibres. Those frictions must be continued until the appearance of the first symptoms of their good effects; we must not however adhere too long to the same degree of cold. From snow we pass to water successively less cold; after the part has become sensible, luke-warm water is used, and ultimately warm water, of which however we must make prudent use.

“If the violet or black spots have disappeared; if the part is soft, supple, and red, we must confine ourselves to simple dry frictions with flannel. It has been further recommended to plunge the asphyxiated part in a dunghill in fermentation,* or envelope it with bags filled with cinders or hot sand; the employment of those latter means of heating should always be of short duration.

“In such cases, as re-action proves feeble, slow, and unenergetic, where the part presents insensibility, and an atony almost œdematous, and where sphacelus threatens, it is allowable to recur to embrocations prepared from oak bark, cinchona, mus-

* “Bernard Valentin mentions having seen a cat, who being frozen with cold and trampled on as dead, was buried in a dunghill; two days after it was perfectly re-established.”

tard, aromatic plants, &c. to which wine, alcohol, myrrh, and camphor may be added; the place affected is merely to be covered with woollen cloth. If, at the end of a few hours, the skin have not lost its livid or violet hue, it is to be scarified and dressed with the topical means just named. Turpentine has been also regarded as an advantageous remedy for dissipating numbness from cold; the limb is rubbed with it, and gradually exposed to heat, to melt the resin, that it may penetrate, and it is kept covered up until completely cured.

“Excitants internally administered may sometimes prove useful—they are the same we shall point out when speaking of general asphyxia. Every pathological author has given a comparative view of what happens in an asphyxiated member, and in frozen animal and vegetable substances.

“That comparison turns, first, upon the application of caloric to those substances; secondly, on the employment of cold water to thaw them, and restore their primitive state. In one point of view the action of caloric seems in fact the same, for until the vital properties are fully re-established, it rests under the dominion of physical laws. If the caloric penetrate it suddenly, it acts upon it as upon frozen fruits, which, when brought near the fire, or plunged in hot water, are quickly changed in the texture of the parenchyma, which is distended and torn, quickly loses flavour, and rots without delay.

“As to the second case, it is certain, from experience, that frozen fruit, plunged in iced water, and afterwards in water gradually less cold, thaws gradually, does not lose its flavour, and may be eaten or preserved at pleasure. So also of congealed eggs; meat also is thawed in that manner, fish, and the delicate game that is sent in winter from Archangel and other governments of the north and east of Russia.

“The part asphyxiated, if subjected to a similar operation, resumes by degrees its natural condition; its analogy to frozen fruit extends no farther than the re-establishment of temperature, or the gradual introduction of caloric.

“It is therefore beyond doubt, that the succession of cold applications used on the body of a person asphyxiated by cold, is

intended to prevent external caloric from penetrating too quickly into the organic tissues, and the re-action from taking place too rapidly.

“Independently of those effects, I am convinced that cold acts as a stimulant, less indeed on the benumbed than on the neighbouring healthy part, from which latter must spring the principal re-active efforts, which we excite in local asphyxia in the very temperature that caused it. When congelation is very extensive, re-action will, if we commence rubbing at the point farthest from the centre, be slow to supervene; perhaps even impossible.

“Reaction, gradually superinduced, re-establishes the vital properties in their integrity, without exposing the part to the risk of inordinate and gangrenous inflammation. If it rise to too great height, it is proper to moderate it by keeping the part for a sufficient time plunged in cold water, or by covering it with linen wetted, and often renewed; the heat and redness diminish, the part lessens, and the pain subsides.

“In the case of a merchant’s clerk, whose hand had been asphyxiated and inflamed, I once used, with success, a sedative ointment, (prepared from one ounce and a-half of goose grease, two grains powdered camphor, ten grains extract of henbane) which he rubbed in every second hour. If the redness of the skin be very deep and dark; if the part present livid brown and violet spots; and, further, if there arise black phlyctenæ, which should be pierced without removing the skin, we must hasten to anticipate an imminent gangrene, and for that purpose employ fomentations of decoction of cinchona, with acid and camphor, at the ordinary temperature. A remark demanding attention is, that the part must not be loaded with compresses, or bed-clothes, and that every kind of compression is to be avoided, and the member to be conveniently supported.

“Gangrene once established, whether primary or consecutive, is to be treated locally and generally on the ordinary principles. According to the strength, and the quick or slow administration of assistance, nature marks out, sooner or later, a boundary between the dead and living parts.

“General asphyxia extends at once over the whole machine,

it presents the image of perfect death; but persons found senseless and deeply benumbed have been recalled to life after twenty-four or forty-eight hours.

“Man re-acts against a rigorous and immoderate cold as long as his strength and courage allow; but re-action has a limit, and a moment arrives when the powers of the vital principle are exhausted, the faculties, physical and moral, remain as if en-chained, and at length abandon the body to the progressive and always increasing energy of cold. Shiverings, puckerings, paleness, and coldness of the skin, livid spots, muscular flutterings, are symptoms of the shock given to the vital forces; the person feels syncope approaching, his stiff muscles contract irregularly; his body bends and shrinks; his limbs are half bent; sometimes lassitude and languor invite him to stop to repose; sometimes a feeling of weight and general numbness retard his steps; his knees bend, he squats down and falls; he then feels an invincible propensity to sleep; every thing grows strange to him; his senses are confused; a thick veil darkens his view; his mind grows dull, his ideas incoherent; he stammers and raves: if he be free from suffering, he is often not so from agitation. Should you try to prevent him from stopping and sleeping, should you strongly represent to him the danger he exposes himself to, he looks at you coldly and stupidly; if he has not lost all consciousness, he pronounces with difficulty a few words, entreating to be allowed to go to sleep; his relations with all surrounding objects quickly cease, he slumbers; the parts farthest from the centre of the circulation become cool; respiration, at first interrupted, becomes slow; the contractions of the heart become feeble, quick, hard, irregular, and sometimes painful; the pulse becomes smaller progressively; the central heat is extinguished; the brain is stupified; the pupils dilated; finally, a deep and mortal coma may be regarded as a certain sign of approaching inevitable death, unless the asphyxiated receive timely assistance.”

In addition to the remarks above quoted, the author observes, that those who have the misfortune to be buried under snow, perish less quickly than those who when surprised by

cold, remain exposed to the open air, and the observation is confirmed by the experience of others. As cases are never uninteresting to the practitioner, whether they tend to illustrate truth or to expose error, we extract the following:

“In the *Bibliotheca Britannica* mention is made of a woman, who, having wandered amid the snows, was seized and benumbed with cold. Snow continued to fall. That unfortunate was enclosed by a layer of that substance, so thick, that she remained there eight days and nights, at the end of which time, the end of a coloured handkerchief appearing above the snow, led to her being discovered; she emerged from that gulf with the use of her senses, and took food with eagerness. What is most peculiar in that case is, that after the first numbness, she found herself very well beneath her snowy covering; that she felt neither cold nor hunger; that she felt thirst only, which she satisfied with morsels of snow. We read in the old ‘*Journal de Médecine*,’ the history of the death from cold, of a man who, in crossing the Pyrenees, was surprised by a tremendous storm, and buried beneath the snow in a state of numbness. The fifth morning he came out of his torpor; a burning thirst informed him of his existence, and made him bite the snow that surrounded him. He was quite astonished on awaking to find his tomb lighted up; he broke the layer of snow that covered his head, but his efforts to disengage himself were vain, he then implored the aid of heaven, and recalled to his soul sentiments of religion and resignation; at length persons sent in search, found him; at sight of them, the unfortunate cried out, ‘wine, my friends, thirst consumes me.’ He was extricated; his breeches had slipped off and left his thighs naked; the epidermis was detached; two large wounds had exposed the kneepans; he appeared, however, insensible to pain. When transported into the nearest village, a surgeon, ignorant of the proper way of treating such cases, did just the opposite of what he ought to have done. The limbs became red, purple and black, the patient complained of burning heat. Pilhes, the writer of the history, being called too late, applied cold in vain; the feet came away; gangrene made rapid progress, and the victim expired.”

The author recommends in concluding his remarks under this head, a system of practice which we think far more judicious than that which he condemns; yet as it is that now generally adopted, we deem it unnecessary to enter into its details, after having already quoted so much which bears on the same point.

The next chapter contains a series of particular observations on the therapeutical application of cold. We proceed to analyze its contents.

The views of the author on this point are in some respects similar to our own, in others, widely different. For example, we admit with him that cold sometimes acts as a *tonic* in a secondary manner, and that it restores energy without raising it beyond the ordinary degree, by abstracting an habitual or accidental stimulus which enervates and rapidly exhausts vital force; while we feel ourselves authorized to deny that such an effect arises solely from the *external* application of the agent in question. On this latter point, there appears to us, to be no inconsiderable confusion in the author's thoughts.—An abstract of them, leads to the conclusions which are represented by him as *established*: 1st, That cold acts on man by a direct tonic property, derived from vital re-action; and 2dly, By an indirect tonic power, resulting from the abstraction of stimulus or the prevention of excessive diffusion and dissipation of organic activity. After informing us that these points are determined, our author briefly examines the therapeutical effects of cold, under the heads of air, bathing, drinks, and aliments. All his remarks on these several points, are too common-place, to admit of quotation. We proceed therefore, to a notice of the seventh chapter, which treats also of the therapeutical properties of cold. After sketching the history of the employment of cold in various ways, as an article of the *materia medica*, and as a luxury, the author, as he warns us, approaches “the most important branch” of his work, “which is to determine the properties in question. He says, “an attentive and elaborate analysis has

led me to distinguish seven, viz. 1. A refrigerating property; 2. An exciting; 3. A sedative; 4. An astringent; 5. A tonic; 6. A debilitating; and 7. A perturbing property."

This division we need scarcely offer an objection to, as it cannot escape any one of our readers, that it is in several points absurd. What does it avail us to be told that cold is a refrigerant? and who that has had but the hundredth part of the author's experience, does not know that it will perturb not only the animal functions, but also the movements of the spirit? It sheds no more light on the science of therapeutics to be informed of those truths, than we should bestow on it by proving by an elaborate process of reasoning, that the rays of the sun are heating, and when in excess, annoying.—When we are told that cold is an excitant, we learn something more specific as to the author's notions of it. We quote therefore, what he has to say on this head:

"2. Exciting property. Cold has the property of exciting directly those tissues that experience its action, and sympathetically those organs to which that excitement is propagated. The excitation is energetic in proportion to the intensity of the cold, and to the liveliness and transitoriness of the impression. The nervous systems of the organic and animal lives receive from it a shock that renders them more active, and even, in some cases, rouses them from insensibility and torpor. By means of this property, we succeed in awakening sensibility and contractility, when diminished or suspended, as, for example, in asphyxia or the hysteric paroxysm. To cut short syncope it is sufficient to sprinkle a little cold water on the face. Hippocrates recommends plunging the feet in cold water, as a cure for the aphonia that succeeds an hysteric fit. Various authors speak of the usefulness of cold affusions on the head, of the application of ice to the eyes, the forehead, the temples, or back of the neck, in cases of amaurosis, whether idiopathic or from local weakness, and of loss of memory owing to stupor and atony remaining after violent shocks of the head.

"The stimulus brings the contractility of the fibre into play,

and contraction consequently puts an end to its state of inertness. It is from the knowledge of this power of cold, that washing of the lower half with iced water, frictions with snow or ice on the sacrum, or on the pubis and perineum, have been employed with success in palsy of the bladder, and in incontinence of urine from debility. Descamps (*Journal de Sedillot*, T. 23.) relates some cases in which he has observed good effects from injection of cold water into the paralyzed bladder. Washing the abdomen with cold water removes inactivity of the intestines, and provokes stools. Marcard recommends them as a very safe remedy. Cullen mentions that, in certain cases, where purgatives had been employed in vain, cold water thrown on the lower extremities proved of itself sufficient to re-animate the bowels. In the sixth volume of the *Edin. Med. Ess. and Obs.* p. 556 and 568, we find, on this head, two very conclusive observations. Vaidy, in the article 'Glace,' in the *Dictionnaire des Sciences Medicales*, relates a case of obstinate costiveness, in which accumulated fœcal matters formed above the hypogastrium, a tumour of the size of an adult head. The patient was made to walk on wet flags, and flannels moistened with ice water were applied to his belly. Alvine evacuations took place without delay. A frigore pedum alvus obstinator solvitur—Klein. Those examples are, I think, of such a nature as to place beyond all doubt the exciting property of cold."

Of the sedative property of cold we can form no clear idea from the notice given of it by our author. It may not, however, be amiss to refer to the case cited by him as an illustration of its reality:

"I shall never forget a soldier, whose leg was amputated at the military hospital of St. Ambrose at Milan. Some hours after the operation, he began to complain of a pain at the end of the stump, and which increased so much as to cause sleeplessness, and force him to utter piercing cries. Removal of the dressings threw no light on its nature. The employment of the principal narcotics, during thirty-six hours of suffering, gave no relief. At length it was determined that the dressings should

be soaked in cold water, for it had been observed that hot liquids exasperated the pain. The effect I will venture to call miraculous.”

As an astringent we are told that the agent under consideration is proper:

“1st, For renewing the contractile force of the tissues, and restoring to the parts the tone and elasticity they have lost. It is employed for removing the looseness of the skin which remains after disease, or is owing to abuse of hot baths; for curing the relaxation of the sacrosciatic ligaments, and the atonic extensibility of the abdominal teguments consequent upon parturition. Emphysema, relaxation of the upper eyelid, œdemas or infiltrations from ligature, yield to the application of ice or cold water. Too great laxity of the scrotum or labia, softness and passive intumescence of the penis from masturbation or abuse of coition, are corrected by lotions and occasional immersions in iced water, or by frictions on the part with ice. By aid of local refrigerants Professor Broussonnet reduced to its natural size, a penis whose corpus cavernosum had swollen to an enormous bulk, in the case of a young man affected with venereal gonorrhœa. 2dly, Cold assists, and even forces displaced parts to resume their natural situation and dimensions; it prevents also recurrence of dislocation. Iced water acts thus on the prolapsed vagina, uterus, and rectum; also sometimes in hernia. 3dly, It contracts and diminishes the pores, as well as the extremities of blood-vessels and exhalents, when too much dilated; it retards, suspends, and entirely arrests the flow of the fluids; it checks their expansion, and prevents their extravasation or infiltration. Simple washing with cold water is sufficient to arrest hemorrhagies from the capillary system and small arteries. Good effects are obtained from cold promptly applied to bloody tumours from contusion, and to thrombus. Cold cuts short atonic sweats; those profuse passive perspirations that depend on relaxation of the skin exhalents; it succeeds in gleet, and other chronic and too protracted diseases of mucous membranes. Cœlius Aurelianus has cured a purely atonic diarrhœa by iced enemata.”

Of the tonic property of cold, sufficient notice has been taken, and we find nothing to attract our readers in the section on its debilitating quality. We therefore pass to the succeeding chapter, after the relation of a case found in the *Journal de Medicine*, which may not be devoid of interest:

“A woman in labour was attacked with epilepsy. During the fit, which lasted usually half or three quarters of an hour, the patient uttered frightful cries, her mouth was distorted and foamed; her frame, universally agitated by horrible convulsions, was sometimes stiff, as if affected with tetanus; the child’s head was presented with an expulsive effort, but the mouth of the womb, which was spasmodically contracted, prevented the termination of the labour. A *douche* of iced water was used; the convulsions ceased forthwith, as by magic; the os tincæ began to dilate; the pumping was continued, and the labour was next day very happily completed.”

In the eighth general division of his subject, the author merely notices the various *modes* of employing cold; and in the ninth, proceeds to the consideration of its application to particular diseases. To follow our author through the extensive field on which he enters, would be inconsistent with our limits. We may briefly state, therefore, that there is scarcely a single ill to which our flesh is heir, that may not be either wholly or partially removed by cold, in the estimation not only of this, but of some other writers on the subject. Cold will give new energy to the enfeebled, and it will bring down to the level of health those who are morbidly excited. It will reduce tumours, allay pain, promote the secretions, and in a word do *every thing*;—so proteiform are its powers. We would caution our readers against this medical universalism. *All* diseases are no more to be cured by one remedy than *all* men are to be saved by one sacrifice. We believe, nevertheless, that few of our means of cure are capable of more extensive application to therapeutic purposes than cold. It is an agent, however, which it becomes us to employ cau-

tiously, for its influence is as pernicious, when it is not used discreetly, as it is salutary when it is directed upon the diseased system by sound judgment.

In fine, not only is the subject deeply interesting to the practitioner, but we think the manner of treating it in the work before us, will be found satisfactory to those who may peruse it. We cannot, however, advise the selection of Dr. Clendinning's translation. It is a most wretched version of the original, abounding in grammatical inaccuracies, which are not rendered more excusable because, as he informs us in his preface, it is *close*.

Either an "*abridged*, a *free*, or even a *paraphrastical* translation," (all of which he informs us, "may, according to circumstances," be called for, would have been preferred to the closeness which should lead to such violations of our vernacular tongue. There is, moreover, nothing in his appendix which would lead us to believe that the rudeness of his version arose from the coarseness of his original—nor is there any thing to redeem the favour he had lost in our eyes, before we had entered into the body of Beaupré's remarks. We trust his future labours as a translator may be more successful, or that he may be deterred from further efforts in this capacity.

R.

ORIGINAL DEPARTMENT.

ART. I.—*On the Successive Formations of Organized Beings.*

“The interests of Society often render it expedient not to utter the whole truth, the interests of Science never; for in this field we have much more to fear from the deficiency of truth, than from its abundance.”

It is proposed in the following pages to endeavour to trace the successive formations of organized beings, commencing with the earliest periods of animal existence, in order to examine their various modifications, from the simple to the most complex.

The present view is offered merely as an outline of one of the most interesting, as it is one of the most recondite subjects of research; we shall first examine the validity of that doctrine which attributes an *uninterrupted* succession in the formation of living beings, which doctrine has been recently most fully developed by Mr. VIREY. (*Dict. D'Hist. Nat. Art. Nature.*)

Concerning the successive formation of living creatures, Virey remarks, “all animals, and all plants, are originally only the modifications of a single animal, and of a single vegetable; we may pursue in the composition of their organs, the whole chain of their resemblance. Let us take for example, *physical man*, or the most perfect of *trees*. If we unfold the first, layer by layer, if we abstract by degrees all his parts, we shall deduce from him the whole series of animals, and shall reduce him at last to the most simple term, the primitive type of animality. We may do the same with the vegetable. It is then evident, that this complication of organs, which we observe in the most perfect beings, is produced only by a successive progression, a species of organic maturity, or continued development. The animal kingdom is in some degree only a single animal, but varied and composed of a multitude of species, all dependant on the same origin. In the same manner the vegetable kingdom has been formed from a single vegetable, and it may be said that animals are all brothers, as plants are all sisters.

“This admirable chain of organization in animals and plants, is extended even to the *generation* of each individual. The embryo of a quadruped, for example, during the first periods of fecundation, is nothing but a living jelly, very similar to the substance of a polypus, or to the organized glaire of the zoophite. Some days after, the first rudiments of its members renders it similar to worms and to other animals of this family, it soon acquires vital faculties analogous to those of the larvæ of insects or of the molusca. It passes afterwards to a state similar to that of fishes, and like these animals it swims in a fluid. In the first stage of its being it enjoys scarcely more than the sluggish and obscure life of a reptile,—like which, the young animal is scarcely able to drag itself along; at length it rises to the rank which nature has prescribed for it. The same may be observed of vegetables. Young animals and young plants are of a soft, humid and spongy texture; and old vegetables, like aged animals, are of a dry and hard temperament. In the same manner the most imperfect animals, as the polypes, vermes and molusca, like the most simple plants, as the mushroom, moss and liliacea, are of a very moist and soft constitution. On the contrary, birds and quadrupeds, trees and shrubs, are of a firm and solid consistence. Thus the most simple animals and vegetables represent the youth of living nature; whilst the most complicated animals and vegetables represent the old age of nature.

“Each class of these two organized kingdoms offers to us a scale of the vivification of matter. Life, indeed, so obscure in the simpler forms of being, becomes increased and developed in proportion as we advance to beings more perfect; plants possess only a vegetative existence, imperfect animals appear rather to vegetate than to feel; finally, the most perfect races live, feel and think. In proportion as the vital power concentrates, forming but one absolute whole, the more it is perfected and enriched with organs. All beings tend to vital perfection; thus each individual receives a greater development of faculties in proportion as it advances in age; in the same manner the most imperfect beings aspire to a nature more perfect; it is on this account that species rise incessantly in the chain of organized bodies, by a sort of vital gravitation. For example, the polypus tends to the nature of a

worm, which tends to the organization of an insect; the insect aspires to the conformation of the molusca, the latter endeavours to change into a fish, and so on even to man! Thus, we may say, the monkey aspires, by successive modifications, to the organization of the negro, and the negro inclines to that of the white man. Among plants the same gravitation is observable, because nature always aspires to the perfection of her works. It appears then manifest, that the most perfect beings spring from the least perfect, and that they become perfected by a succession of generations. All animals incline towards man; all vegetables aspire to animality; minerals tend towards vegetables; but the more vital the matter, the greater is its liability to death, because it is possessed of more unity, which may be destroyed at one blow. On the contrary, the most imperfect of animals are the most prolific; they are even so tenacious of life, that they live after having been divided; and reproduce the parts cut off by the knife, and even multiply into as many individuals, as there are pieces, as is exemplified in the hydra and actinea, &c. Vegetables themselves are very tenacious of life, being reproduced by slips, suckers, shoots, and various other means besides grafting and seed. Those beings the least favoured in regard to complexity of life, are indemnified by their fecundity.

“Man is much more easily killed than the earth worm, all proportions considered; if we enjoy more intelligence and sensibility than the fish, this animal is a thousand times more prolific, and more vivacious. Imperfect animals and vegetables are endowed with more physical vitality, ourselves with a greater proportion of sensitive life, and moral feeling. Our existence is principally occupied with the functions of the brain and nerves. Animals spend their life principally in the functions of generation and nutrition.

“Every being, therefore, has an equal proportion of life, but each consumes it after his own manner. The more vitality is expended externally through the medium of sensibility and intelligence, the sooner do the internal organs decay. Animals being chiefly occupied with the internal functions, are more robust and prolific, as well as more exempt from the diseases and infirmities of man, who, in proportion as his existence is more occupied in

thought, sentiment, and exterior affections, has his internal organs debilitated, and his physical powers diminished.

“We thus observe several orders of life; 1st, that of intelligence, which appertains to man; 2nd, that of sensation, which characterizes animals; 3d, that of nutrition, or the vegetative faculty, which is more peculiar to plants, although animals are not deprived of it: but all these different modes of existence emanate from a common source, viz. the soul of the world, or the spirit of God; it is for this reason we say, He fills the world, exists every where; that we live and breathe through him alone. Our souls even are nothing more than emanations from this soul of the Universe, which establishes throughout, harmony and concord.

“It is evident that nature having created a series of plants and animals, and having finished with man, who forms the superior extremity, she has concentrated in him alone all the vital faculties which she had distributed to the inferior races. Man, then, possesses the essence of all organic power; it is in his brain, that the divine power, which has presided over the formation of beings, begins to display itself. It is thus that man is capable of knowing all that is beneath him, for it is only necessary to cause his intelligence to return by that rout which she has followed in the organization of the body. It is in some respects, a reminiscence of the soul, since it passes through the whole chain of animals until it ascends even to man. In order to understand, we have only to develop the inherent faculty of thought, which contains in itself all the elements of human science; this regular development is what we call reason, which exists in every man, though not equally developed in all.

“If this was the proper place we might show further, that the soul aspires to elevate, the body to debase itself! all the inferior parts of animals tend principally to physical life; such as nutrition and generation, whilst the superior parts, on the contrary, containing the nervous ramifications, the senses and the brain, tend principally to moral and intellectual existence. It may be added, that animals excel by brutal qualities, and men by intellectual; and that animals diminish in the former respect, in proportion as they approach the latter. It would be still possible to conceive that if nature should one day create beings superior to man, they

must necessarily be endowed with greater intellectual energy, and less of brutal propensity, just as the inverse is observable in the inferior orders of beings; commencing even in the negro. Such superior beings may possibly come within the plan of nature, as all the nations of the earth appear to have anticipated them in genii, demons, spirits, and angels, which convince us that the human soul aspires, throughout the earth, to a state of higher perfection, and endeavours to ascend the chain of all possible existence, even to the throne of divinity. We are indeed nothing else than the starting point of a more perfect type, just as animals are nothing more than successive points of imperfect man; and as plants are the commencement of animals, or the first stage of their organization.”—(*Virey, Dict. D’Hist. Nat. Art. Nature.*)

He continues to state, that we can no longer doubt of the common origin of beings, when we consider their resemblance; thus, all the different kinds of rats, mice, &c. are absolutely the same animal, differing only in size, colour and other superficial characters, occasioned by greater abundance of nourishment, light, heat, moisture, and climate, which are the chief agents in modifying the formative principle of animals. In the same manner, “the cat, lynx, panther, leopard, tyger, lion, &c. belong absolutely to the same original stock.” Among birds similar analogies are observable; and this resemblance is equally ascertained among vegetables; every variety of mushroom, the umbellifera, the liliacea, &c. afford still more complete proofs of this truth; and among insects, all the papiliones, the whole family of fleas, flies, and spiders, &c. Nature need only vary in a slight degree the numerous generations of the same plant, or of the same animal, in order to create a multitude of analogous animals, which we name *species*. The most remarkable variations are denominated classes, orders, genera: and all this scaffolding of methods has been invented by the human mind, in order to facilitate the knowing of objects; but which is by no means acknowledged by, or founded in nature; she having produced at first only a single animal, and the most simple vegetable, which she has varied “ad infinitum,” and complicated by easy shades, even to the most perfect creatures. “All this diversified machi-

nery of animal existence is co-ordinated and united together, like the various pieces of an immense edifice;—and evidently proves the impossibility of *spontaneous* generation. If an animal could be produced by matter, in a state of putrefaction, why should nature employ such complicated apparatus for the purpose of reproduction? whence the necessity of these mean-derings, these labyrinths, in order to elaborate, appropriate, and perfect a vivifying fluid? to extract it from the blood and impregnate it with the nervous influence, in order to impress upon it the highest degree of vital energy? Wherefore this superfluous pomp in all the organs consecrated to reproduction?"

The author above quoted, grounds his disbelief in spontaneous generation, principally on two experiments, 1st, Leuwenhoeck, the first discoverer of animalculi infusoriæ, declares, that having taken a piece of fresh veal, and hermetically closed it in a glass vessel during many months, he observed an infectious serosity to flow from it; this he immediately examined with the microscope, and repeated his examination, at various periods, always exactly closing the vessel, and was never able to discover the slightest appearance of animalculi. (This experiment was performed in 1686.)

Since this time Spallanzani and others have repeated these experiments, either in closed vessels, or by placing the substances in a state of putrefaction, in gas *deprived* of oxygen; but not the least signs of animation were ever visible; hence Mr. Virey concludes, primitive germs are absolutely indispensable in procreation. To me these experiments are both questionable on the same principle, viz. that oxygen is necessary in some form or other to all stages of animated beings, and this is precisely what was denied in all the experiments above alluded to.

The reasoning which follows is much more conclusive. It appears to us, says Mr. Virey, as utterly impossible, that the simplest atom of living matter could organize itself in putrescent matter, as, that a horse or an ox could leap forth from a mountain of smoke; for if we should combine a sufficient quantity of putrescent or decomposing matter together, why should not an elephant or a man be produced, in preference to animalculi? Another argument of the falsity of equivocal generation,

of the weakness, (or if we may be allowed the expression,) the “*putridity*,” of such an opinion, is, the little probability that chance, (which they say presides over such creations,) would at all times produce well formed and very distinct species. It is scarcely possible, if chance was really the parent of these animals, that monstrosities and the most imperfect efforts would not sometimes occur; there is no reason why one sort should be produced to the exclusion of others, or why an assemblage of new species, or thousands of proteiform infusoria, should not occur to baffle description. Why always vibrio’s for example, from paste or vinegar, and not every other imaginable species? is it denied this matter, to construct a fish, a crustacea, or any other figure, inasmuch as the thousand circumstances of chance are so variable? Far from this! there are always exactly the same forms, the same species of intestinal worms, or infusoria, which are regularly propagated. And whilst we observe on the surface of the globe different species, as the horse and the ass, mixing together and producing hybrids, *putrefaction* by the rarest privilege, although submitted to chance, preserves, on the contrary, the precise forms of animalculi, constant and perfect species of *cysicircus*, *vorticella*, *volvoces*, &c. It is thus sexual generation only, which produces monsters; whilst the pretended *chance* of putrefaction affords the most pure and permanent species; this would be wrong presiding over right, and the laws of wisdom contradicting themselves.

The doctrine of spontaneous generation would appear then, in direct opposition to the established laws of nature; its admission has been generally opposed by theologians, inasmuch as it has been occasionally used by atheists and materialists, as a support to their systems. But all theological considerations aside, we would be inclined to take the facts as they are; and if spontaneous generation can be proved, would admit the same, with all the consequences, whatever these might be.

Theologians, nevertheless, formerly admitted with the peripatetic school, the doctrines of spontaneous generation; and St. Thomas, in many parts of his theological visions, established, that the virtue of Heaven, or what in the present day is called “*cosmic power*,” was sufficient to produce the *imperfect* animals,

such as insects; but not the more perfect, as quadrupeds or birds. But theology never decided that new species or unknown races were created in this manner; on the contrary it establishes, that those species which are the daily product of putrefaction, were “*originally produced in their principles*,” in the days of the creation of the world, by the Supreme Author. Which is to say, that their germs, or their primitive forms, were assigned them according to general laws from which they cannot deviate. Here then is the hand of God placed over the pretended generation of chance.

The *true* science of nature will thus lend at all times, and under all circumstances, the firmest support to religious sentiment in manifesting the creative wisdom of God.

The idea of the successive formation of organized beings, by means of progressive improvement, which was first, among modern authors, seriously maintained by Lamark, has been thus beautifully developed, and minutely detailed by *Virey*; who thinks he is able to trace that vast and complicated machinery, *man*, though his various gradations, (or rather degradations,) down to the primitive monade, the first invisible atom of organic existence; or mounting upwards, link by link, with step aspiring trod, he climbs through nature, to creation's lord.

The doctrine thus attempted to be taught has been ridiculed by some, and viewed with contempt by others; but whilst we are inclined to consider the views of the author as a splendid specimen of the *Nugæ Philosophicæ*, or of captivating eloquence; they demonstrate to us the necessity, in matters of science, of restraining the imagination within the range of sober judgment; for surely, it is scarcely possible to conceive of a philosophical disquisition approaching nearer to reverie; but as it appears to have been conducted in the spirit of philosophy, in the same spirit it should be viewed as worthy of cautious consideration. The author to whom these remarks apply, is confessedly one of the most eloquent writers of our age: possessed of a brilliant imagination, and stupendous understanding, he has extended his views over the whole creation; and in purely speculative subjects, he unquestionably stands unrivalled. But unfortunately for science Mr. Virey is no naturalist, and when occupied with sub-

jects purely scientific, which require minute detail, it is no wonder, that his unlimited and *general* views, should occasionally seduce him into error. He who could observe in the different stages of the embryotic fœtus, nothing more than a constrained analogy to the polypus, the worm, the larva, the fish and the reptile, would, by an acquaintance with the laws of co-existence, or the mechanical philosophy on which organic bodies are constructed, have been enabled at this early period of the embryo, to contemplate the rudiments of the most complex and perfect animal; he would have been compelled to acknowledge, that throughout the whole animal creation, no one being is *imperfect*; but that each is equally finished and perfectly adapted to perform its part in the sphere in which its destiny had placed it.

It will not be denied that nature aspires to the perfection of her works; that is to say, that each individual of the most complicated animals proceeds from the most simple point of organization.

The sturdy oak, whose luxuriant foliage constitutes the pride of the forest, at one time formed but a speck in the acorn; and man himself, the self-reputed lord of the creation, sprung from a few atoms, of less importance than the fluids of an animalculus, but we maintain that each animal is equally perfect in its kind; and consequently, that the "*perfect*" [complex] do not proceed from the "*imperfect*" [simple.]

Nor would we deny, what indeed is self-evident, the general polity of nature, that is to say, the constant and inseparable connexion of her various productions. Vegetables depend immediately for their subsistence upon earthly, æriform, and inorganic particles; animals animalize vegetables; and man subsists upon them all; and in this way *only* can vegetables be converted into animals; the most simple into the most complex beings; and not by successive generations. So far from this indeed, we believe that every truly specific difference observed in animals or vegetables, is solely dependant on a specific difference in the constitution of the primordial germ; and that it is totally beyond the power of art, or any external circumstance, to change this order of things: to convert the lion into a tyger.

a mouse into a rat, or cause the leopard to change his spots. On the contrary, we have not a single plausible reason for supposing that during three thousand years, or as far back as the records of history go, the least perceptible change has been effected on the most simple animals; some of which were accurately described by Aristotle, two thousand one hundred years ago. We have every reason to conclude, that every distinction of existing species has existed from the earliest periods of the formation of the present world; and has its origin ultimately in the nature of the *soil*; every variety of which is marked by a corresponding variety in its animal and vegetable productions; and many of these are limited by geographical distribution. When the island of New Holland was first discovered, the extraordinary peculiarity of its climate, soil, animal and vegetable productions, were for a time the astonishment of the world.

On the same principle, it is rational to presume, that if by any extraordinary revolution of nature, the present state of the surface of our globe should become totally changed, such a revolution must necessarily be attended with a total change in its animal and vegetable productions. New races of animals would march forth, the least intelligent of which might possibly be enabled to contemplate with wonder and admiration, the strange and outrè organization, exemplified in the remains of a former world, as we at the present moment behold the mastodon, megatherium, paleotherium, and other fossil reliquiæ of the pre-adamitic worlds. Who shall presume to set bounds to that power which commanded, “let there be light, and there was light,” which after having formed the fish of the sea, and birds of the air, said, “let the *earth* produce living animals, reptiles, and beasts of the earth, according to their species; and it was done.” Finally to perfect the whole:

Let us make man! with beauty clad,
And health in every vein;
And *reason* thron'd upon his brow,
Stepp'd forth *majestic man*;

Around, he turns his wond'ring eyes,
All nature's works surveys;
Admires the earth! the skies! himself!
And tries his tongue in praise!

Ye hills and vales! ye meads and woods!
 Bright sun and glittering stars!
 Fair creatures, tell me if you can,
 From whence and what I am?

What parent power, all great and good
 Do these around me own?
 Tell me, creation, tell me how,
 To adore the Vast Unknown!—DARWIN.

Between species and species nature has drawn a line of separation, which time cannot change nor the sophistry of man obliterate. In our observations on the polity of nature, nothing is more calculated to arrest the attention of the naturalist than that immutable law of nature, which from the very commencement of organic existence, has impressed upon her productions *specific* characters; and which continues to maintain them in despite of innumerable opposing causes.

The domestic dog (the proteus of carnivorous animals, which Pallas and some others believe to be a prolific hybrid,) has like a faithful slave followed the destinies of his master in every climate, has been subjected to every variety of food, education, and discipline, yet in no case has this animal so far departed from its original type as not to be easily recognised by the most indifferent observer; deformities and monsters are indeed to be met with, but in no instance has it given origin to a race resembling in specific characters the wolf, fox, jackall, or hyena, animals most nearly related to him in external form and internal structure.

When we contrast the *permanency* of species with the *transitory* nature of individual existence, the reflexion cannot but prove mortifying and humiliating to the pride of man. In a state more or less perfect every individual of a species proceeds from the same permanent mould, among men some are destined to enlighten the world by the brilliancy of their conceptions, or to astonish by the magnitude of their geniuses;—some are consigned to perpetual slavery, or are the victims of sensuality, terminating with each day the purposes of their existence, and appear merely as the useless exuberances of human fecundity;—all without reserve submit to the law of transmutation; and men the most celebrated for intellectual pre-eminence, the wise, the

heroic, and the great, are hourly hurried into the oblivion of the tomb, with the slave, the vagrant, and the demoniac; and on the part of nature with the same apparent indifference. From this law even the productions of his ingenuity and power claim no exemption; and all the boasted monuments of human art, which appear to have been formed for posterity, “feel the tooth of time, and experience the rasure of oblivion.” Persepolis and Palmyra, with their splendid porticoes, majestic temples, and gorgeous palaces, have long ceased to be,—and the “Land of Priam lives only in song.” The serpent and the bramble creep over the dwelling places of kings.

Time is the genius of transmutation, into whose lethal circle are continually passing all created things. He waves his magic sceptre, and mountains of adamant are as the “dust of the balance;”—he nods his hoary head, and the self-reputed lord of the creation, like the ‘clod of the valley,’ is without perception, sense, or motion. He spreads his sable pinions, and our fondest recollections are shrouded in the mantle of oblivion. The Colossean statue—the sculptured bust—and the marble monument—crumble into the dust in commemoration of which they were constructed.

Amidst this wreck of matter, and metamorphosis of worlds, where shall we rest our desponding thoughts? The answer is clear and inevitable;—on *God and nature*, truth and reason;—divest the mind of prejudice, cultivate the understanding, and survey the works of the creation, when every object will declare in silent eloquence, that *God* only is immutable, and *nature* unchangeable.* As the thirsty traveller longs for the refreshing stream, so the soul fatigued with the labours of life, is glad to repose herself upon the peaceful bosom of nature. Instructed thus by the common destinies of all created beings, of our own instability, we should resign ourselves with perfect confidence into the hands of him who regulates the world, and con-

* “Mighty nature bounds us from our birth,
The sun is in the heavens, and life on earth.
Flowers in the valley, splendour in the beam,
Health on the gale, and freshness in the stream.”—BYRON.

fine ourselves to the study of his immutable laws; which are equally revealed to us in the lightest atom which fluctuates in the meridian ray, or in the mighty confluence of worlds.

Such being the ordinary march of nature (which an impartial examination of her laws impels us to believe is really the case,) where shall we look for the proofs of the common origin, or successive and uninterrupted formation of living creatures?

If we now turn our regard towards the great truths unfolded by *geological science*, we shall at every step be met by additional arguments in favour of the position we have taken; we shall be convinced that the surface of the globe we inhabit has been subjected to many revolutions, immense in their extent, and tremendous in their consequences; all of which bear the most unquestionable evidence of the presence, foresight, and intelligence, of a *first great cause*, the Supreme Director of the Universe.

When we endeavour to penetrate the dark night of time, obscured by the dust of accumulated centuries, and reflect for a moment on the state of our globe anterior to the creation of all living beings, we wander into regions over which the torch of science sheds but a dim and feeble light, to render "darkness visible."

Of the interior of our globe we know nothing; the first three strata of primordial rocks,—granite, gneis, and mica-slate,—possess every appearance of having been held in a state of solution, and of having been deposited long before living nature had established her laws; whilst the ocean was a sterile empire, ere yet the monstrous whale had sported on its billows, and thousands of sparkling fish and shells were wanting to animate the fathomless depth.

When we wish to ascend to the causes of the formation of beings, positive facts, for the most part, are known to us only by their results, or by the inductions that we are enabled to draw from them; since we have no contemporaneous witness of these great events. It is not certainly by an accumulation of minute details, that we can expect to advance in the study of nature; they rather serve to surcharge it with a useless luxury: those great laws which have formed the universe are much more

worthy of our observation; we are but little benefitted by travelling incessantly in the same circle of knowledge, without endeavouring to escape from this terrestrial prison, without raising our regards towards the All-powerful arm which gives life and movement to matter. But from the absence of much precise knowledge which we can never acquire, we are forced to recur to philosophical inductions, and to admit the most rational principles we may be enabled to discover by our thoughts; but besides that these inductions and principles become legitimate instruments of reason, when it is necessary to penetrate by means of meditation into the mysterious sanctuary of first Cause, there are no other means by which we can become acquainted with them; we have no other choice but to make use of them, if we wish to advance in the study of nature.

I trust I shall meet with indulgence in offering my feeble efforts to trace those mighty revolutions to which our earth has been subjected; remains of myriads of fossil animals, its former inhabitants, those archives of nature imprinted upon the rocks, and imbedded in the interior of mountains, offer to our inspection irrefragible proofs; the contemplation of which excites in our minds conceptions of the state of the primitive earth, such as we may have of the splendour of an ancient city, by wandering over its remains and viewing its fallen columns, its decaying monuments, and its buried edifices!

With this view let us divide the creation into several *distinct* though *arbitrary* periods. The first epoch produced the primitive monade, which have left no impression; 2d, The molusca nuda, and corrolines, together with multilocular shells; 3d, Univalve shells and *crustacea*, as trilobites and bilobites, &c. 4th, Bivalve shells, as terebratuli and producti, &c. all the above are peculiar to salt water formations, at least there does not appear any evidence of fresh water formations in the mineral kingdom, or in the impressions of the fossil remains which must necessarily have accompanied such formations.—At this early period of our planet, no mountains, hills and vallies, diversified its surface; entirely destitute of verdure, a savage sterility desolated its frightful solitudes; fields of flowers, and umbrageous forests existed not; nor did rivers and cataracts; their shores

enamelled with the violet and the amianthis, embellish the scene; the melodious organs of the feathered race had not yet been tuned to the praises of their Creator; the voice of the echo had not yet resounded to the bleating of the lamb. Nor harvest, nor grove, waved before the gentle zephyrs, with murmurs softer than the shepherd's lute. "All things are hushed, as nature's self were dead," nothing occurred to interrupt the deadly silence which every where prevailed, save the occasional roaring of the ocean, or the shrill whistling of the winds. The mind could wander only over naked plains, or immense empty deserts, where reigned sadness and dearth! exposed to the scorching rays of the sun, the earth rolled cheerlessly through the regions of infinity.

By the sacred historian the chaotic scene is depicted with primitive simplicity—"and the earth was without form and void, darkness was on the surface of the deep, *and the spirit of God* moved upon the face of the waters." The mind of man naturally recoils from the contemplation of the awful convulsions to which our planet is now subjected—"all the fountains of the great deep are broken up, the windows of heaven are opened," the volcano, the tornado, and the deluge, have commenced the work of regeneration;—fire, air and water, have conspired to interrupt the harmony of the universe, and threaten all things with anarchy and ruin; the earth to her very centre is shaken; its surface is broken up and dissolved, to enter again into new combinations—immense masses of primordial rocks are elevated into mountains from the depth of the ocean, carrying with them to their loftiest summits. the transition strata beneath which they were buried, and thus unfolding to our view, organic reliquæ of pre-existing worlds. The inhabitants of the deep are completely exterminated, but at length "a voice is heard from him who rides on the whirlwind, and directs the storm." The volcanoes cease their thunders; the winds are hushed, and the ocean retires. A new world appears, diversified with mountain, hill and dale; intersected with majestic rivers, which rush towards a common level; nor does the scene long remain mute and inanimate; the surface is soon clothed with verdure, and embellished with new vegetables and new

animals, with an organization which advances them in the scale of perfection.

We suppose this stage of the earth to constitute the most prominent epoch in the creation, characterised by the production of the floetz rock formations, or horizontal secondary stratifications, with their accompanying fossils; and by the formation of fresh water, and land animals, and vegetables.

Proceeding upwards, towards the present surface of the earth, we discover proofs of the many revolutions to which it has been successively subjected; always accompanied with greater or less changes in the nature of its animal and vegetable productions, relics of which are found more or less scattered among the fossil reliquæ of *former* worlds—for it does not appear that every revolution has been attended with entire destruction of animal existence, on the contrary, some of these, as the *cornua ammonis*, for example, are found dispersed throughout various succeeding strata, and extending over a great portion of the globe.—But generally speaking, each general revolution forming extensive strata, has occasioned the destruction of most of the old, and formation of many new animals and vegetables; constituting new orders, genera and species;—each successive generation differing from that which precedes it, less and less in proportion as we advance towards the diluvial formation which covers many parts of the present earth's surface. No remains of fresh water, or land animals have been discovered previous to the early secondary formations—in which, as well as in the oolite and lias formations which succeed, we discover for the first time amphibious and land animals; one of the earliest is the Maestricht monitor of the mountain of St. Pierre, the bones of which occur in company with the teeth of sharks, gryphites, echinites, belemnites and ammonites. The strata above-mentioned, together with the calcareous schistus, furnish us with the remains of the ichthyosaurus, plesiosaurus, saurocephalous, megalosaurus, crocodiles, &c. advancing upwards to the gypsum formation, we are struck with the novelty of its fossil remains; we here, for the first time, meet with land mammiferous quadrupeds, viz. Palaeotherium, seven species.—Anoplotherium, five species, (these quadrupeds partake somewhat of the hog and

deer in their organization,) one species of *sus*, one of *canis*, one of *viverra*, one of *didelphis*, three or four sp. of birds, two sp. of reptiles, three or four of fishes: these animals are all found imbedded in the gypsum, which is covered over with a light layer of white marle, containing phytolithites, fragments of fishes, with specimens of *limneus* and *planorbis*, with other fresh water shells; the whole of which is covered with a marine formation, filled with sea-shells. It was most probably after the destruction of the animals above enumerated, that the earth was fitted to support the immense quadrupeds whose remains are discovered in the upper diluvian of the present surface of the earth; such as the mastodon, elephant, megatherium, megalonyx, rhinoceros, hippopotamus, &c. all extinct and mammoth species of animals. It would appear, indeed, that at this period nature delighted in the creation of gigantic beings. Thus fossil whales have been discovered measuring upwards of one hundred feet; sharks sixty or seventy feet; reptiles forty or fifty feet, &c. The same deluge of which we are speaking, doubtless destroyed and inhumed the denizens of those caverns, so successfully investigated by Professor Buckland (*Reliq. Diluv.*) among which were the hyena, tiger, bear, wolf, fox, weasle, horse, ox, deer, hare, rabbit, rat, mouse, raven, pigeon, lark, duck, and partridge. These fossils possessed appearances which rendered it certain, that they had lived and died in the same regions where they were discovered; as did also the Siberian elephant, which proves that the northern latitudes were then *warmer* than they are at present, which is further demonstrated by the fossil vegetables being all tropical.

The fossil bones of the rein-deer are discovered south of the Mediterranean; these animals do not now exist south of the Baltic sea; these latitudes were then at some period *colder*, as is testified by other well authenticated facts. No remains of man, or of those animals most nearly allied to him, as the monkey, bat, &c. of *human* art or invention; or of any animals of a similar species with those he has domesticated,* such as the sheep, hog,

* The horse excepted, according to the account of Professor Buckland.

dog, cat, ox, goat, &c. &c. have ever been discovered (fossil) in this or in any other situation; consequently it is probable, that the diluvian animals were destroyed anterior to the existence of man. Among these remains are found extinct genera and species; consequently it could not have been the flood of Noah, as we are informed that a specimen of every living being was preserved in the ark.*

It is clearly ascertained, says M. Cuvier, that the oviparous quadrupeds are found considerably earlier, or in more ancient strata, than those of the viviparous class. Thus, the crocodiles of Hon'teur, and of England, are found immediately beneath the chalk.

“The great Saurien reptile, and the tortoises of Maestricht, are found in the chalk formation, but these are both marine animals. This earliest appearance of fossil bones seems to indicate that dry lands and fresh waters must have existed before the formation of the chalk strata. Yet neither at that early epoch, nor during the formation of the chalk strata, nor even for a long period afterwards, do we find any fossil remains of *mammiferous land* quadrupeds. We begin to find the bones of mammiferous sea-animals, namely, of the manati and of seals, in the coarse shell limestone, which immediately covers the chalk strata in the neighbourhood of Paris. But no bones of mammiferous land quadrupeds are to be found in that formation, and notwithstand-

* As relates to the fossil mammifera, most of which were discovered by Cuvier, they form a series consisting of about seventy-nine species.—Nineteen of which have been found in the calcareous gypsum formation; twenty-one in other strata equally new; and none of which have been met with in formations anterior to the coarse shell limestone; thirty-nine present their remains in the most recent diluvial deposits, or nearly at the surface of the earth, and consequently appear the less ancient of those animals of which the species have become extinct. None of them belong to the orders bimana, and quadrumana; nor to the family cheiroptera; ten are related to the order carnivora, properly so called; one only belongs to the marsupial family; three are of the order *glires*; two of the edentata; fifty of the order pachydermata; ten of the ruminantia; and four at least belong to the cetacea. Those buried at the greatest depth, differ most widely from recent mammifera, and are sufficiently distinguished to form particular genera.

ing the most careful investigations, we have never been able to discover the slightest traces of this class, excepting in the formations which lie over the coarse limestone strata; but on reaching these more recent formations, the bones of land quadrupeds are discovered in great abundance. As it is reasonable to believe that shells and fish did not exist at the period of the formation of the primitive rocks, we are also led to conclude, that the oviparous quadrupeds began to exist along with the fishes, while the land quadrupeds did not begin to appear till long afterwards, and until the coarse shell limestone had been already deposited, which contains the greater part of our genera of shells, although of quite different species from those that are now found in a natural state. There is also a determinate order observable in the disposition of these bones with regard to each other, which indicates a very remarkable succession in the appearance of the different species. All the genera which are now unknown, as the palæotheria, anoplotheria, &c. with the localities of which we are thoroughly acquainted, are found in the most ancient of the formations of which we are now treating, or those which are placed directly over the coarse limestone strata. It is chiefly they which occupy the regular strata, which have been deposited from fresh waters or certain diluvial beds of very ancient formation, generally composed of sand and rounded pebbles.

“The most celebrated of the unknown species belonging to known genera nearly allied to those which are known, as the fossil elephant, rhinoceros, hippopotamus and mastodon, are never found with the more ancient genera, but are only contained in diluvial formations.

“Lastly, the bones of species, which are apparently the same with those that still exist alive, are never found except in the very light and *alluvial* depositions, and probably are not, strictly speaking, *fossil remains*.”

Such is the statement of M. Cuvier, formed on long and accurate observation of organic remains in their original positions, aided by the first museum of detached specimens in the world. Now to all this, it has been intimated: First, that the asserters of this hypothesis are *infidels*! and secondly, that the hypothesis itself is gratuitous and unnecessary. To the first of these charges,

we shall only reply, that the puerile practice of calling names has long ceased to be considered a legitimate instrument in logic. When such individuals interfere in questions of science, it is always for the purpose of suppressing, not for *promoting* knowledge: truth is to the *moral*, what the sun is to the *physical* world; the glare of the former indeed, to the *bigoted*, is as insupportable, as was the refulgence of the sun to Milton's *fallen hero*; whose address to the glorious luminary is equally applicable to either.

“ O thou, that with surpassing glory crowned,
Look'st from thy sole dominion like the God
Of this new world; at whose sight all the stars
Hide their diminished heads; to thee I call,
But with no friendly voice, and add thy name
O sun, to tell thee how I hate thy beams.”—*Milton*.

To the second charge, we presume to say, that if an hypothesis is gratuitous and unnecessary, the phenomena to be accounted for may be explained without it. We will now, therefore, ask a few plain questions; our opponents will not deny the existence of organic animal remains in stratified bodies. They have indeed distinctly admitted the fact, but they are all to be accounted for by one great moral cause—the Noachian deluge.

Were then these strata of depositions formed during the convulsions of that short and perturbed period? most of them, on the contrary, bear indubitable marks of slow and uninterrupted operations both of mechanical and chemical causes; but if our opponents chose to limit the evidence of a deluge to the cracks and clefts which every where exist in the crust of the earth, it will necessarily follow that these strata with all the animal remains, which in regular succession are found imbedded within them, existed, and that too in a completely indurated state, before that event. We have therefore irrefragable proofs of a prior crust of the earth.

But, on the other hand, allowing the formation of these strata, and the fact that all the organized animal remains contained within them were really the effects of one single and contemporary cause,—the *Noachian deluge*; independently of the diffi-

culty of conceiving how strata could be formed under such circumstances at all, why have we not an universal jumble of quadrupeds, birds, reptiles, and every class of animals which could perish by means of water? Above all, why have we such multitudes of fossil fish; and why have we no relic of man, the single species on whose account, as our opponents agree, this tremendous visitation was sent upon the earth; and of which every individual perished, excepting eight persons? Besides, how does this hypothesis account for the extinction of so many genera and species? According to this system, pairs of each must have been taken into the ark—the mastodon, the megatherium, the palæotherium, &c. if then existing;—all, and every one of which must, therefore, respectively have survived the deluge. All are now extinct; and so long extinct, that there is not a hint in all the records of antiquity respecting their existence.

It has been a subject of dispute, whether the marine animals discovered on the summits of high mountains, were conveyed there by the ocean; or whether they were deposited in the situations they hold previous to the *elevation* of mountains; we shall not at present enter into this discussion; but merely state a fact less ambiguous than the discovery of sea-shells on situations so elevated, which is, that *land* animals have been deposited at very great altitudes. We are informed by Buckland, that the fossil remains of the horse, deer, and bear, have been discovered at the height of sixteen thousand feet, on the north of the snowy Kylas, one of the Hymalaya mountains, covered with gray calcareous sand; they had fallen with Avalanches.

Humboldt also discovered a species of mastodon on the Cordilleras, seventy-two thousand feet above the level of the sea, in the kingdom of Quito; another seventy-eight thousand feet at St. Fee de Bagota. We believe that sixteen thousand feet is an elevation much exceeding any to which fossil sea-shells have attained. At some period then, there has existed a cause which deranged the equilibrium of the earth, forcing it to roll on an axis different from the present one; thus far we are warranted by facts; it is unnecessary to speak here of the numerous theories which may emanate from them.

Reflecting on the various phenomena which the present in-

Investigation has led us to consider, the formation, destruction, and reproduction, of organized beings, we see no possible derogation from the general laws of nature; no such thing as a real miracle: monstrosities, anomalies of form, and all other deviations from nature, are connected with other general laws, which enter necessarily into the composition of the harmony of the universe; such are death, disease, and poisons, which viewed in relation to ourselves are considered as disorders of nature. O.

ART. II.—*On the Uncertainty of the Signs of the Rupture of the Uterus.* By WM. CHURCH, M. D. of Pittsburgh. Read before the Pittsburgh Medical Society, May 2d, 1826.

WRITERS on midwifery have laid down certain symptoms, and which they tell us are pathognomonic of rupture of the uterus, which they have successively copied from each other. It is my intention in the present essay—First, to give the symptoms detailed by different European and American writers on obstetrics. Secondly, by an analysis of several well authenticated cases of rupture of the uterus, to prove that this unfortunate accident has taken place when none of those symptoms were present. Thirdly, detail two cases where most of the characteristic symptoms were present, and where rupture of that organ happily did not take place. And conclude by a few practical remarks.

We are informed by Dr. Denman that “the rupture of the uterus is accompanied by a sense of something giving way internally, *always* perceptible by the patient, and sometimes audible by the attendants, with sudden excruciating pain in some part of the abdomen, a receding of the part of the child which presented, with an instant vomiting of the contents of the stomach, or of a brown fluid, and an abatement or a total cessation of the pain, together with some degree of hemorrhage from the vagina.”* Dr. Burns tells us “when this accident does happen, the woman feels something give way within her, and usually suffers at that time, an increase of the pain. The presentation disappears more or less speedily, unless the head have fully en-

* Francis Denman, pp. 357-8.

tered the pelvis, or the uterus contract spasmodically on part of the child. The pains go off as soon as the child passes through the rent into the abdomen; or if the presentation be fixed in the pelvis they become irregular, and gradually decline. The passage of the child into the abdominal cavity is attended with a sensation of strong motion of the belly, and is sometimes productive of convulsions. The shape of the child can be felt pretty distinctly through the abdominal coverings." And that "the patient after this accident soon begins to vomit a dark coloured fluid, the countenance becomes ghastly, the pulse small and feeble, the breathing is oppressed, and frequently the patient cannot lie down."*

Dr. Ramsbotham states, "that rupture of the uterus always takes place suddenly, and generally without any previous warning—while the labour appears to be going on naturally but slowly, the woman is seized in the middle of a strong expulsive effort, with an uncommon pain in some part of the belly: this pain is of a very different nature from those pains of labour under which she has heretofore suffered; she has never felt the like in any preceding confinement. The attack of this new pain usually occasions a shriek, and is accompanied with the sensation of something having given way within: it is commonly followed by a sense of weight or oppression, and sometimes by the feel of the rising of her burthen. The patient now involuntarily puts her hand to her belly, with a complaint of increased suffering, and utters frequent exclamations expressive of misery.—This new pain is referred to one point, on one or other side of the uterine tumour, and it is stated to be similar to that which would be occasioned by cutting or tearing the parts asunder, and sometimes it is likened to the cramp. After its attack, the regularity of the labour pains is suspended, uterine action either ceases altogether, or is gradually diminished in energy and effect." That faintness, hemorrhage, coldness of the extremities, with tremulous quick pulse, restlessness, vomiting of greenish, or dark coloured fluids supervenes; and in some cases there

* James Burns, volume ii, page 118.

is a slight return of uterine action which is unavailing. And that “if the rupture takes place on the fore part or side of the uterus, some of the limbs of the child will be distinctly felt in a thin woman through the abdominal parietes by a hand pressing on the belly—the irregularity produced by such an occurrence will be sufficient to distinguish it from the uniform state of the uterine tumour in its entire state. But if the breach occur at the back part of the uterus, the escape of the child is not so distinctly perceptible by the hand unless the rent be considerable,” and that the head unless it be firmly impacted in the pelvis recedes.*

It is unnecessary further to quote from European writers on this subject, suffice it to say, that Baudeloque, Smellie, and Merriman, concur without any material variation with the aforementioned writers. We will now attend to American writers, and hear what they say on this important subject.

Dr. Bard states that “the signs of this accident (rupture of the uterus) having occurred, are severe pain in a particular spot, suddenly rising to excess, and then as suddenly ceasing, with an immediate discharge of some blood, followed by faintness, cold sweats, and a feeble pulse, and a particular sensation at the moment, which discovers it to the woman, with the singular external appearance and fulness of the abdomen.†

Dr. Dewees, in his very valuable essay on rupture of the uterus, “after having remarked upon the uncertainty of any sign that is supposed to be the forerunner of the accident,” tells us, “that when this accident happens it is almost always announced by very decided symptoms.” And that, “for the most part the woman feels an acute pain at the part where the rent has happened—she generally shrieks out, and declares that something unusual has happened to her; the rupture is sometimes accompanied by a noise which is audible to the by-standers; a discharge of blood of greater or less extent is noticed from the vagina; her face becomes pale; her respiration is hurried; she becomes sick

* Dewees' *Rambsbotham*, pp. 339, 40, 41, 42.

† Bard's *Midwifery*, page, 297.

at the stomach, and most frequently vomits; the matter discharged is sometimes only the common contents of the stomach, at other times very dark coloured, and even black; the pulse becomes extremely frequent, small, fluttering, or extinct; the woman complains of a mist before her eyes, loss of sight, and extreme faintness; and cold clammy sweat bedews the whole body, and convulsions and death follow if she be not speedily relieved."

He also informs us that "notwithstanding the very decided character the symptoms attending rupture of the uterus assume, they are not exclusively to be relied on."* For much valuable practical information on this subject, I refer to the essay which ought to be attentively studied by every practitioner of midwifery. It is in my opinion decidedly the best treatise on the subject I have seen.

Dr. Atlee of Philadelphia says, "the symptoms denoting a rupture to have taken place are principally these: The patient feels an acute pain in the part and suddenly cries out. Paleness and syncope supervene, the abdomen is changed in form according to the part of the foetus which has been thrust into the cavity; cold sweats, vomitings, convulsions and death, close the scene. He further observes, "but sometimes, I presume very rarely, the symptoms are not so clearly indicative of the accident,"† and narrates a case illustrative of this remark: I will refer to this case hereafter.

Thus we learn that the most distinguished European and American writers on, and teachers of midwifery, agree in laying down very decided symptoms as characteristic of rupture of the uterus. We will now by citing several cases, some of which are reported by these self same writers, show that this accident occurred where none of the pathognomonic signs were present, and in other cases where the peculiar sensation of something having given way within the abdomen, which Dr. Denman tells us "*always*" accompanies this accident, was not felt, although

* Essays on various subjects connected with Midwifery, pp. 242-3.

† Medical Recorder, volume vii. page 26.

some of the other signs were present. Yet Drs. Dewees and Atlee justly informs us that the signs of this accident are sometimes though seldom obscure.

The first case I will adduce is incidentally mentioned by Dr. Denman, who, after having detailed the symptoms of this accident, observes in the same paragraph; "but I have seen one case in which there was reason to believe that the woman walked a considerable distance, and lived several days after the uterus was ruptured, before her labour could be properly said to commence." He does not inform us how the case terminated. Now it is highly probable that if the very decided symptoms of this occurrence were present, the doctor, with his usual accuracy, would have mentioned them. I therefore infer that they were absent, for if the great prostration of strength, severe cramp, pain in the abdomen, vomiting, &c. which he tells us always accompanies the accident obtained, I am certain that the woman could not afterwards have "walked a considerable distance and lived several days," which expressions are by far too indefinite.

The second case is reported by Dr. John Sims, a very respectable physician of London. The patient, a well formed woman, mother of several children, seven months gone with child, after taking a very long walk under great agitation of mind, was, upon her return home, seized with uterine hemorrhage, which continued some days, and then gradually abated and did not afterwards return; but the woman continued very weak and ailing for two months, when, according to her reckoning, she had completed the full period of gestation. On the 11th of May, 1792, she was taken with labour pains, and sent for her midwife, who gave her expectations of a speedy delivery. But the pains going off she left her in the evening, with assurances that the child presented right, and every thing was in a safe way. Next morning finding herself very ill, but without labour pains, the patient sent for an experienced practitioner in the neighbourhood, who attended, and upon examination, found the mouth of the womb not sufficiently dilated to admit the finger; he could feel no membranes distended with water, nor any part of a child, either through the mouth of the womb, or through the parietes of

the womb itself. Her face was bloated, her legs and thighs œdematous, and her belly very large. From these circumstances he very rationally suspected that she was not with child, and directed his attention to the hydropic symptoms. But as she daily grew worse, Dr. Sims was desired to see her on the 16th of May, when he found her unable to lie down in bed, complaining of violent pains in her side; her respiration was short and frequent; her pulse extremely rapid, with some hardness in the stroke; a foetid black discharge flowed from the vagina; her legs and thighs were much swollen and pitted upon pressure; the mouth of the womb was relaxed and a little open at the first entrance, just as it is frequently found in unimpregnated women, who have had several children; no part of a child could be felt through the parietes of the womb, nor could the enlargement of this organ be perceived. He was immediately convinced, that if the midwife had given a true account of the case, at the time she was first called, a *rupture of the uterus* had taken place and the child had escaped into the cavity of the abdomen. On examination of the belly externally, which was very large and hard to the feel, the tumour circumscribed as in pregnancy, but nothing like the extremities of a child could be felt through the teguments." After much severe suffering the woman died undelivered on the seventh of the next July, fifty-seven days after the rupture had happened. On dissection, in the anterior part of the cervixuteri next the bladder, was a rent through its substance, about three quarters of an inch in length, the sides of which were nearly contiguous, but ulcerated and not disposed to heal. The uterus was well contracted. Dr. Dewees very justly remarks on this case, "that it is not improbable that the rent might at first exceed six inches." And yet it is worthy of notice that five days after the accident had happened, the abdominal "tumour was circumscribed as in pregnancy, and that nothing like the extremities of a child could be felt through the teguments."*

The next case is by Mr. Charles Shitite, and is from the

* Essays on the various subjects connected with Midwifery, by Wm. P. Dewees, M. D. &c. pp. 212, 13, 14, 15, 16.

Transactions of the Surgeons Apothecaries, (of where is not stated,) and is contained in the 7th volume of the Medical Recorder. Mr. Shillito entitles it "a case of *spontaneous* rupture of the uterus, in the seventh month of pregnancy. The woman was in her forty-third year, corpulent, but active, and had a capacious and well formed pelvis." "One evening, in the seventh month of her twelfth pregnancy, after more than usual exertion, symptoms of labour appeared; some trifling gushes of blood escaped, and the motions of the child were strongly felt. The os uteri was found rigid and admitting only the point of the finger."

No regular pains occurred until the following morning, when two very severe ones were experienced. The os uteri was a little more dilated, but still hard. The patient complained of a heavy weight and coldness in the abdomen, and general uneasiness. The third day was ushered in by a rigour followed by fever, intermitting pulse increased restlessness, acute pain in deeply breathing, and tenderness and tumefaction of the abdomen, which increased with the day, attended with delirium, furred tongue, and anxiety of countenance. These decided symptoms of uterine and peritoneal inflammation plainly indicated that the uterus had ruptured the day before, probably when the "two very severe pains were experienced." "Dr. Merriman, who was now consulted, passed two fingers through the os uteri, and discovered a rent in the posterior part of its cervix. The woman died on the twenty-fifth day after the rupture of the uterus, and on the twelfth after the delivery of the fœtus." On examination after death the uterus was found extensively ruptured, and "the left side of the os tincæ, of the cervix, and of part of the body of the uterus, appeared to have sloughed off. Mr. Shillito confesses he had no idea that the uterus was ruptured during the first forty hours of his patient's illness."

In the fourth volume of the Eclectic Repertory, Dr. Milton Antony reports the case of a negro slave, "who had the character of being very deceptive, and who complained on the 25th, 26th and 27th of March, 1814, of pains in her hypogastric region, with an internal hardness which she told her associates she could feel with her hand. Her pains were somewhat periodical.

resembling labour pains, accompanied with a sense of weight and oppression about the seat of the uterus; but as she denied the charge of pregnancy it was concluded she was deceptive and no farther notice was taken of her case."

"On the evening of the 26th she informed a woman with whom she associated that she believed she had miscarried, that she had some show which induced her in this belief. On the morning of the 27th, however, she arose and got breakfast, and in the course of the forenoon took to her bed again and made much complaint. A physician was called to see her, who, on entering the kitchen in the afternoon of the same day, to his utter astonishment found her dead;" and on examination the uterus was found extensively ruptured and the child had escaped into the cavity of the abdomen. "The cervix uteri and lower hemisphere of the uterus was in a schirrus state."

Dr. Chatard of Baltimore furnishes the next case, which is contained in the twelfth volume of the New-York Medical Repository. The subject of this case was a negro woman of small stature, advanced in years, and who had twelve years before borne a dead child. When the doctor was called to visit her she had been attended by an experienced midwife fifteen hours, who informed him, "that the membranes were broken before her arrival; that the head of the child was in the position in which she first found it; that the belly of the woman was harder, more elevated and more painful than she had ever observed it in any other parturient woman, that its anterior part, however, from the pubes to the navel, was remarkably soft though painful; that each of the labia pudendi was swelled to the size of the fist; that her pains were ineffectual though frequent; and finally, that her pulse had been very weak from the commencement." On examination the doctor found the midwife's account to be correct. After many unsuccessful attempts he succeeded in bringing down the feet and delivering the body of the child; but unfortunately by pulling at the body to bring down the head, the head separated from the body and was left in the uterus, although the doctor says he used little force, as probably the child had been four days dead; for at that time "she was seized with a bilious vomiting, during which her belly had acquired its present

form; that it had ever since continued to be painful, nor had she since experienced the same sensations from the child as before.” An unsuccessful attempt was now made to extract the head by the hand; next the crotchet was sent for. But when I put my hand, says Dr. C. “into the vagina, I found that the intestines had fallen into the vagina.” The doctor by examination with his hand found the uterus very extensively ruptured. The woman died in a few hours afterwards. The body was not examined: the doctor thinks the womb was ruptured during the vomiting four days preceding labour, and conjectures that the softness felt at the anterior part from the pubes to the navel, was caused by the intestines sliding into this part. In this I concur, for the pain and tension of the abdomen, which came on soon after the vomiting, in my opinion, prove that then the accident happened. This peculiar feel and appearance of the belly, he thinks pathognomick of rupture of the uterus. The midwife who attended, and who had practised forty years, told him that she had observed this symptom joined with an elevated and hard belly, but twice during her long practice. Both of the women died and their children were extracted by the crotchet; one of the physicians suspected rupture of the uterus, but contented himself by saying it was decayed: the other, who is at once skilful and candid, did not suspect a rupture, nor should I have (says Dr. C.) suspected it, if I had at first succeeded by the forceps. Thus I believe this disastrous accident often occurs without the physician ever suspecting it. This case is very valuable in a practical point of view, for the symptom mentioned by Dr. Charlard as occurring in three cases I do not recollect to have seen enumerated by any systematic writers.

Another case exactly in point occurred in the practice of Dr. Stewart of Philadelphia, and is detailed by Dr. Dewees in his *Essay on the Rupture of the Uterus*. On the 14th of July, 1820, the membranes ruptured and the water was evacuated without any previous pain, nor did any supervene until the morning of the 17th; when about ten o’clock I was sent for, “when every thing appeared to promise a speedy and safe delivery.” “About two o’clock the pains became quite severe,” and Dr. S. who had previously taken his leave, was again sent for, and went im-

mediately; but before my arrival, says the doctor, "the pains had entirely ceased. The os uteri was now fully dilated and the cervix (vertex I presume is meant,) lower" than it was in the morning.

"Expecting every moment a recurrence of the pains, I waited for some time, but finding they did not come on, she was requested to walk about the room; and while walking, the form of the abdominal tumour was so particularly situated, that several females who were present remarked it; the tumour was less round, and more flat above and acute in front than usual.

Near an hour passed without any return of pain, during which time the pulse was nearly natural, and although she felt no regular pain, she complained of excessive uneasiness and distress. She died about ten o'clock on that evening, after the body of the child was delivered; and on examination next day the neck and body of the uterus were found ruptured," and the parietes of the uterus were preternaturally thin.

Dr. Dewees makes the following very judicious observations on this case, which, as they are equally applicable to the cases above referred to, I cannot help doing myself the pleasure of quoting. "This case is remarkable," says Dr. D. "first, in the entire absence of symptoms which would lead to a suspicion that a rupture was about to take place. Secondly, in the perfect freedom from those marks which distinguish this accident after it has taken place; for there was neither vomiting nor even sickness—no fainting nor disposition to it—no frequency of pulse nor hurried respiration. Thirdly, no particular event or expression decided the moment when the uterus gave way—no exclamation from sudden or acute pain, nor any noise to characterise the injury—no external hemorrhage—in a word, nothing to lead to the suspicion that a laceration had happened."—Thus far the doctor's observations are applicable to the cases above, and to the three next succeeding cases.

I will next advert to a case which occurred in my practice, which is published in the fifth volume of the Philadelphia Journal of the Medical and Physical Sciences.

"I was called to visit the subject of this case at five o'clock A. M. on the 23d of June, 1822. Her age was thirty-six years,

and she was in labour with her fifth child, and who was taken in labour on the day before at eleven o'clock in the morning. From that time she had been attended by a midwife who stated to me, that from the beginning she had regular labour, and that she had slept between the pains, and was as much composed as could be expected during the whole time—that the membranes had ruptured, and that the waters were discharged about an hour and a-half previous to my arrival—since when she had about four pains in rapid succession, and that she thought that six or eight more would have effected the delivery. On examination I found that the head of the child had descended low and was wedged in the pelvis.—The abdomen had in a great measure lost its globular form, and just above the pubes, on the right side, I could distinctly feel through its parietes, the child's elbow—I therefore apprehended a rupture of the cervix uteri. I inquired whether at the time the pains had left her she felt any thing break within her? or if she had experienced any unusual feelings? Her answer was that she had not felt any thing break within her, nor any movement of the child, nor any unusual pain! And that she now felt only a little exhausted. She died undelivered on the morning of the 24th, about twenty hours after the occurrence,—and on dissection it was found that the child had completely escaped into the cavity of the abdomen, and the uterus was generally and extensively ruptured from the fundus to its connexion with the bladder and rectum. Its parietes were reduced from the ordinary thickness, to that of paper, and at the insertion of the fallapian tubes it was of a frail cob-web-like texture.”

Dr. Atlee, of Philadelphia, while in Columbia in Lancaster county in this state, was called by a physician to visit one of his patients “whose case was very obscure, and who was dangerously ill.” The physician informed Dr. Atlee that she had been about three days under his care, having one day previously sent for a midwife to attend her labour, which was then supposed to have commenced. He learned that after a few trivial pains “all signs of labour had ceased, and the patient, who expressed no unusual uterine sensations, became suddenly very weak, complained of difficulty of breathing, dysury and a painful dis-

tention of the abdomen.”—Various means were used for her relief by three physicians, “who from the unsatisfactory history of her case, were all of opinion that the disease was inflammation either of the uterus or peritoneum, inferring from the slightness of her previous supposed labour pains that parturition had not commenced.”

“I first,” says Dr. Atlee, “passed my hand over the abdomen which was *uniformly* distended and painful on moderate pressure, then proceeded to a more particular examination. She complained of no pain as I advanced my fingers towards the uterus. I felt an apparent thickening and folding of the vagina, and obstruction to the passage of the finger, and with considerable difficulty reached the os tincæ, thrown in an obliquely transverse situation above the symphysis pubis, and elongated to a mere fissure.”

“I gave it as my sentiment that rupture of the uterus had happened, founding my opinion on the folded state of the vaginal coat, the absence of heat in the parts, and the distortion of the os tincæ, all of which I apprehended were caused by the superincumbent pressure of the displaced child; the absence of heat contra-indicating inflammation of the womb. Dr. Atlee’s views did not coincide with those of his professional brethren. A few hours after this examination she died; and on opening the abdomen the uterus was found contracted and emptied of all its contents, and had a wound nearly crucial, and now about two inches at the largest diameter, on the right side and midway towards the fundus.”*

In the 10th volume of the Philadelphia Journal of the Medical and Physical Sciences, Dr. Braybs of South Carolina, reports a case of rupture of the uterus, in which none of the characteristic symptoms were present, and where this accident was not suspected. The doctor not being able to account for the woman’s death very laudably had the body disinterred, and the uterus was found extremely ruptured.

These nine cases in my humble opinion incontrovertibly prove that rupture of the uterus often takes place, unaccompanied by

* Medical Recorder, volume vii. pp. 27-8.

any of the symptoms given as pathognomic by writers on Midwifery. True, there was a cessation of uterine action in these cases after the rupture had happened.

Dr. Ramsbotham, in his valuable work on Midwifery, relates nine cases of rupture of the uterus, each of which presenting something different, and each occurring under different circumstances, where some of the signs were present, but in no case did the woman complain of something having given way within her abdomen. The cases are interesting and instructive.

Dr. Gazzam of Pittsburgh details a case of rupture of the uterus where this symptom was absent, and makes some very judicious observations on the fallacy of relying on the symptoms of systematic writers.*

In the nineteen cases above referred to, the symptom of something having given way within the belly of the woman was not present; although Dr. Denman and others tell us that the accident is always accompanied by it! What reliance, I ask, can we therefore place on any sign, or signs given by them? This symptom one would reasonably suppose from the nature of the accident should be present in every case. Perhaps the thinness of the uterus in Drs. Stewart's and Church's cases may account for the absence of the symptom in these cases. Dr. Denman tells us that "the uterus may be worn through mechanically, in long and severe labours, by pressure and attrition, between the head of the child, and the projecting bones in a distorted pelvis, especially if they be drawn into a point or a sharp edge."† Perhaps this may account for the absence of this symptom in some of these cases.

I will now relate two cases wherein some of the symptoms of rupture of the uterus were present, and where this dreadful accident happily did not take place.

Case first, on the 15th of August, 1823, I was called to attend Mrs. G——, of St. Clare township, Alleghany county, aged thirty-eight years, in labour with her eighth child. On my arrival at eight o'clock, A. M. I was told that she had been in re-

* Western Quarterly Reporter, volume ii. page 302.

† Francis Denman, page 337.

gular but slow labour for twelve hours, and that the membranes had ruptured, and the waters were discharged at about day-break that morning. The os uteri was considerably dilated: the presentation was natural. As the bowels were in a constipated state a dose of salts was given, which soon operated well. The pulse being full and frequent, and as there was some rigidity of the external parts, a pint of blood was taken from the arm. The bladder was regularly evacuated, and every thing indicated a safe delivery in the course of the day, The pains increased in force and frequency, and became very severe and expulsive after the middle of the day. At three, P. M. when I expected that four or five pains would have expelled the child, during a violent expulsive effort, she suddenly exclaimed, "Oh doctor, the cramp,"* and immediately the pain went off. She became very restless, uterine action ceased, sickness of the stomach, with faintness, came on. The head of the child, which was resting on the perineum, did not recede. The new pain she said was of a very severe cramp kind, different from any pain she had experienced in any former confinement, which extended from the left side of the umbilicus where it had commenced over the abdomen. She repeatedly declared that the pain would kill her if not soon relieved. Having before seen two cases of rupture of the uterus, where none of the decided symptoms were present, I now apprehended that this dreadful accident had happened. I gave my patient sixty drops of laudanum, had embrocations of warm oil and laudanum constantly made over the abdomen, and kept her mind and body as tranquil as possible. About half past four uterine action returned, and in about another hour she was delivered of a living child. The placenta soon followed; and she had a good recovery. She has since borne a living child. Nothing unusual happened during her last labour.

Case second.—One afternoon in the month of July, 1824, I was called to visit a stout well formed negro woman, aged thirty years, in labour with her second child, and requested to deliver her with instruments; she had been forty-eight hours in

* It is worthy of notice that Mr. Golden's patient uttered a similar exclamation when her uterus ruptured. James Burns, vol. ii. p. 116.

labour, and the waters were discharged about twenty-four hours. The pains, which were very severe during the last night, had ceased about three hours before my arrival; soon after she had been seized with a severe cramp pain in her belly; sickness at the stomach and vomiting. She was restless and impatient, complained of a very severe cramp pain in her abdomen, different from labour pain, and headach. The child's head was low in the pelvis, and there was a considerable discharge of an orange coloured fluid from the vagina. The abdomen had a peculiarly hard and rather an irregular feel; it had in some degree lost its globular form. This was probably caused by the waters having been so long discharged, and the irregular contraction of the womb on the child. The rectum was loaded with hardened fæces. Her countenance indicated great distress. The pulse was quick and rather tense, which induced me to take a pint of blood from her arm; the bleeding relieved the pain in her head. I ordered the midwife to administer a purgative glyster immediately, and to rub the abdomen constantly with warm oil and laudanum. The clyster operated well and completely emptied the rectum. After an hour the uterus began to act a little, to increase this action I gave a drachm of ergot in decoction in divided doses, and in about another hour she was delivered of a large dead child which appeared as if it had been dead for two or three days. The placenta soon followed. She had a slow recovery, but eventually got well.

In these two cases the symptoms of a rupture of the uterus having happened, were much more decided than they were in the nine first cases quoted above, and equally if not more as characteristic of the accident than they were in the last ten cases referred to. Whether the method of treatment adopted had any agency in preventing a rupture from taking place I cannot determine. Indeed I apprehended that this disastrous accident had happened in both cases.

In the first case there was the sudden severe cramp pain in the abdomen, restlessness, faintness, sickness at the stomach, cessation of uterine action, and the exclamation that something dreadful had happened, and that she never felt the like distress in any of her previous confinements, although she had borne

seven children. In the second case there was a severe cramp pain in the abdomen, restlessness, sickness at the stomach, vomiting, cessation of uterine action, hemorrhage, and great general distress, with a peculiar appearance of the abdomen.

I respectfully dissent from Mr. Shillito when he informs us "that these accidents are however happily rare,"* and concur with Dr. Dewees when he observes, "that there is great reason to believe that the uterus is ruptured during parturition much more frequently than is commonly supposed;"† because many practitioners, the pathognomonic symptoms of rupture of the uterus given by writers on midwifery being wanting, instead of inquiring into the causes of their patient's death, content themselves by referring the fatal event to something inexplicable in the case; while others still more worthy of blame, although they know that this accident has happened, follow Smellie's very erroneous advice and say nothing about the matter.‡ The accoucheur should in every case, if possible, correctly ascertain the cause of his patient's death, and if the case presents any thing peculiar, lay it before the profession. As this accident was at one time taught to be absolutely and necessarily fatal by Dr. Wm. Hunter and others, then at the head of this branch of the profession, and as this opinion has been proven to be entirely erroneous, by cases of recovery from this accident occurring in the practice of Drs. Douglass, Hamilton, Hugo, and others; and also as all human knowledge is progressive, perhaps by adopting the mode of procedure above advised in all cases of death during the time of, or soon after parturition, some premonitory symptoms may yet be discovered, and a plan of treatment hence adopted which may sometimes fortunately prevent the uterus from rupturing.

It is the unquestioned duty of the accoucheur in every case to inquire into the state of the bowels and bladder, and cause them to be regularly evacuated; to bleed according to the state of the pulse, and the circumstances attending the labour; and if the labour is lingering and the woman thereby exhausted; or if the

* Medical Recorder, volume vii, page 577.

† Dewees' Essay, page 201.

‡ Ibid, page 202.

pains are of a spasmodic, or erratic kind, give an anodyne; or should she complain of a peculiar cramp pain in the abdomen different from labour pains, frictions with warm oil and laudanum constantly made over the belly will be decidedly serviceable. And if a rupture of the uterus be suspected to have happened, for the method of detecting it, and the consequent mode of treating, it I refer to Dr. Dewees' very valuable essay on the rupture of the uterus, which contains an excellent epitome of all that is known on this important subject.

ERRATUM.—For Mr. Charles Shitite, in page 180 of this Article, read Mr. Charles Shillito.

ART. III.—*A case of Tracheotomy for the removal of a Foreign Substance from the Trachea.* BY JOHN ATLEE, M. D. of Lancaster, Pennsylvania.

ON Wednesday noon, August 11th, I was consulted by a son of Mr. Dinsmore, aged ten, who had that morning while running put a button-mole into his mouth, which, during respiration, was drawn into the trachea. He complained of uneasiness during respiration, attended with a very slight rattling, and pointed to the depression at the upper part of the sternum as the situation of the mole. He informed me that he had swallowed bread, and many other articles recommended to him without effect. Upon requesting him to cough a rattling was heard, and soon after a sudden check to expiration denoted the lodgement of the button against the lower surface of the glottis, which required a sudden and violent effort of inspiration to remove the sense of suffocation. Being an intelligent boy I explained to him the nature of the case and the difficulty of dislodgement without an operation, and told him to inform his parents. I gave him an emetic, with the hope that the violent efforts at expiration produced by it might throw the mole through the rima glottidis. Next morning I was sent for by his mother, who told me that during the night he had two or three severe spells of coughing, which almost amounted to suffocation, with very great anxiety and alarm. These were relieved by placing him in an upright position and keeping him so until morning. After explaining to her, the father being absent, the nature of

the accident, the improbability of its removal through the natural passages, the danger of delay producing great irritation, inflammation and its consequences, the safety and almost certainty of success from an operation both she and the boy expressed their willingness to submit to any mode of relief I thought proper to use. Feeling desirous to have my opinion confirmed by a gentleman of more experience than myself, I requested Dr. Humes to examine the child and to give his opinion to the parents. Being much engaged we could not meet until the following evening, when after a close examination, my opinion of the situation of the mole and the necessity of an operation, was confirmed, and the next morning at eleven o'clock was fixed upon for operating. I left a dose of cathartic pills to be taken at bed-time, which operated very well during the night. Having given an opium pill about ten o'clock to tranquillize the system, and ease the cough if possible, the patient was placed upon a dining-table, with his head bent over the edge and held firmly by an assistant. An incision was made through the integuments about an inch and a-half long, extending downwards from above the cericoid cartilage. The sterno-hyoid and thyroid muscles were then separated and exposed the inferior thyroid veins lying upon the trachea and passing down to the transverse vein. After exposing the trachea, a sharp pointed bistoury was passed through it about the third ring, and extended downwards about three quarters of an inch. From the symptoms previous to the operation, I concluded that the mole must lie upon the bifurcation of the trachea, its diameter (nearly half an inch) being too great to admit its entrance into the bronchiæ, and I depended more upon the expulsive power of the lungs, than the use of forceps. Holding open the orifice of the wound, I requested him to cough, this he did several times violently but in vain. Suspecting that it might have passed through the chink and swallowed during the alarm of the operation, I shut up the trachea and the wound and told him to cough again, the mole was immediately thrown up against the chordæ vocales and he exclaimed, "it is there yet." Being satisfied as to its presence I passed a probe through the wound as far as the bifurcation without feeling the mole, but the probe caused a violent effort to cough, when the probe was withdrawn and immediately after it the mole was thrown

through the wound several feet from me. The wound was closed by two interrupted sutures and adhesive strips, and the boy relieved of all his uneasy sensations, was put to bed. Seven o'clock P. M. was sent for and informed by the mother, that about two hours previously the boy had a violent fit of coughing with a sense of suffocation which continued some time;—that he threw up a little phlegm and was relieved. He told me that there was something in his throat which he could not get up and which almost choked him. Upon requesting him to expectorate and cough I perceived that the air was in violent expiration forced into the wound and occasioned a disagreeable sensation which prevented further attempts at expectoration.—I requested him to cough slowly and gradually to get up the phlegm, which he did readily. It was slightly discoloured with blood. I gave him some pectoral mixture with directions to take a table-spoonful every four hours when troubled with cough, and to sit in a half upright position during the night.

15th. Found my patient doing very well;—slept soundly all night with little or no cough;—no air passing out through the wound, nor has any passed except yesterday, when coughing violently. Complained of soreness in the trachea opposite the upper end of the sternum, which I attributed to the irritation excited by the button-mole. Desired him to be kept quiet and to abstain from all stimulating food. Permitted him to have mush and milk.

16th. Patient doing well, but had a bad night owing to his having eaten too much mush and milk;—had had fever and rested badly;—no cough, nor difficulty of breathing, but some soreness in the upper part of the chest; gave him four cathartic pills;—evening;—pills operated well, and patient feels much better;—no medicine necessary;—wound looks as if union by the first intention had taken place in every part except the lowest half inch.

17th. Patient slept well, is very lively and complains of nothing but the soreness of the wound;—soreness of the chest is relieved. Continues gradually to mend, and by the 24th the wound was entirely healed.

The fortunate termination of the case related above tends to prove the safety of an operation, the want of which in many in-

stances has caused the death either immediately or protracted of many an interesting child.

The facility with which, in most instances, it may be accomplished, ought to be an inducement never to hesitate or delay in similar circumstances. The irritation, which had already commenced, would inevitably have produced inflammation and supuration, which extending to the minute ramifications of the bronchia must have caused an incurable disease so long as the offending substance remained in the trachea. An operation performed at a late period might have terminated successfully; but the chance of success must have been lessened in proportion to the extent of the irritation and inflammation of the mucous tissue of the lungs. It is therefore, I think, most advisable, especially as the frequency and the success of the operation is demonstrated to us by the cases reported by Drs. Jamison, Annan, and others, in this country, to operate in all cases where immediate death or protracted suffering is likely to follow the accidental introduction of foreign bodies into the trachea.

ART. IV.—*An Inaugural Dissertation on the properties of the Apocynum Cannabinum, (Indian Hemp;) submitted to the Trustees, President, and Medical Faculty of Jefferson College.*
By M. L. KNAPP, Licentiate of the Chenango Co. Medical Society, N. Y.

ΑΠΟCYNUM is the name of a genus of plants. It is derived from the Greek, απο and κυων a dog, dog's-bane, or poison for dogs: also called Hippomanes, from ιππος a horse, and μαδινσαι to be mad, because the plants were supposed to produce madness in horses.

We have but three species arranged under this genus. Michaux* has described only two, the *Androssæmifolium*, and the *Cannabinum*. Pursh† and Barton‡ describe a third, calling it *Hypericifolium*, and Nuttall§ says that there are other species,

* *Flora Boreali Americani*, tom. 1. p. 122.

† Pursh's *Flora Americæ*, V. 1. p. 179.

‡ Vide Barton's *Flora Philadelphiacæ*, Vol. 1. p. 130.

§ "Of this genus there are several other species in South America, India, and the Cape of Good Hope, and one species *A. venetum*, said to be indige-

indigenous to southern climates, but he has not identified their characters. The first of these species has received the attention of Dr. Bigelow, of Boston, and will be found treated of in his valuable work, entitled "Medical Botany."* The Cannabinum is the subject of this essay. The facilities which offered for examining its properties, were, access to the laboratory of this institution, and an attendance on out-door patients of the Infirmary.

Botanical Description.—The plant, then, under consideration, is the second species of the genus *Apocynum*, class *Pentandria*, order *Digynia*; natural order *Contortæ* Linnæi.

The characteristics of the genus are the following.

Calyx, very small, five-cleft, persistent. *Corolla*, campanulate, half five-cleft, lobes revolute, furnished at the base with 5 dentoid glands alternating with the stamina. *Anthers*, connivent, saggitate, cohering to the stigma by the middle. *R. Brown*.

Style, obsolete; *Stigma*, thick and acute; *Follicles*, long and linear; *Seed*, comose. *Nuttall*.

The first and second species resemble each other so much, that a careless observer might easily mistake one for the other. I have therefore given the description of both, that the specific difference may be the more apparent.

1. *Apocynum Androssæmifolium*. *Leaves*, ovate, glabrous; *Cymes*, terminal and lateral; tube of the corolla longer than the calix. *Brown*.

Common Dog's-bane, Tutsan-leaved Dog's-Bane. From two to three feet high. Flowers, pale red and striped. On the borders of cultivated fields, frequent. Perennial. July. *Barton*.

2. *Apocynum Cannabinum*. *Stem*, upright; *Leaves*, oblong-oval, with hoary pubescence underneath; *Panicle*, pubescent; the limb of the corolla erect. *Willd. and Pursh*.

Indian Hemp. Resembles No. 1, easily distinguished, however, by the leaves and flowers, which are greenish white, or yellowish green, and smaller than those of No. 1. In similar places with the preceding. Perennial. June, July. *Barton*.

nous to the islands of the Adriatic."—*Genera of North American Plants*, Vol. i. p. 162.

* Vide Vol. ii. p. 148,

This description assigns to it its proper place, and identifies its characters sufficiently well for all botanical purposes, but in connexion with this general treatise, and from personal observation, I shall add some further remarks on its habitude.

It belongs to the natural family *Asclepiadeæ* or *Apocynæ*, every part of the plant when wounded, emitting copiously a milky, agglutinating juice.

It grows common, I believe, in every section of the United States, and will generally be found in the neighbourhood of water-courses, along ditches, borders of woods and cultivated fields; flourishing best where some agricultural operations have disturbed the soil. I have found it frequent in Jersey, on the borders of stubble fields, particularly in the vicinity of Cooper's creek.

It will mostly be found springing up singly, or from beside the old stalk of last year, with a stem erect, round, smooth, of a third of an inch in diameter, and pithy, and attains to the height of from two to four feet. It is of a yellowish green colour in the shade, but exposed to the sun, of a beautiful carmine red. The branches are also of a lively red colour, and together with the leaves are disposed in opposites.

The flowers appear in panicles situated on the summit, and the inner sexual parts being higher coloured than the corolla, the clusters assume a pink or purplish hue. The flowers are said to possess the singular property of catching flies, which is ascribed by Dr. Darwin* to irritability. Mr. Curtist however says that it is owing to this mechanical reason, viz: that in consequence of the convergency of the anthers, and their adhesion to the top of the stigma, a narrow fissure exists, which becomes more contracted at the top. The proboscis of the insect being inserted into this cavity in search for the nectary, in withdrawing, gets caught, and the efforts of the insect to rescue itself only serve to fix it more securely. In this situation mosquitoes, gnats, and small flies are frequently found dead. The clusters of fruit hang in pairs of terete, linear-lanceolate follicles or pods, from three to six inches in length, and of the size of a crow quill;

* Bot. Gard. part 2. p. 182.

† Bot. Mag. t. 280.



APOCYNUM CANNABINUM.

containing numerous imbricated seeds lying upon a small central rachis, or receptacle, and crowned with a long pappus, or down.

The root is horizontal, of the size of the stem, and extends in opposite directions, frequently to the distance of five or six feet, either way, with few or no collateral branches; often, however, sending up two or three stems in its course, and terminates rather abruptly in a few spreading branches. It is made up of the ordinary parts of a perfect root, viz: epidermis, cortex, liber, lignum, and medulla, and sends off numerous fibrillæ for bringing in nourishment. It appears superabundant, or disproportioned in quantity to the rest of the plant, and may be reckoned a proper caudex or receptacle, for the elaboration, no doubt, of important medicinal juices. From twelve stalks of ordinary size, I obtained a pound of the root.

Its sensible properties are the following: It bleeds freely if wounded, and the concrete juice exhibits the properties of gum elastic. It has a strong odour, and a nauseous, sub-acrid, lasting bitter taste. The colour of the young roots is similar to that of the Irish potatoe, but the old roots are of a dark chesnut colour, approaching to black. It loses 45.8 parts in a hundred by drying, fractures transversely in its cortical portion, shrivels, and assumes a darker colour. When fully dried it is extremely spalt, breaks short, and is easily reduced to powder, in which state it very much resembles ipecacuanha.

Its utility as applied to the Arts.—Into a strong decoction of the tops of the *Apocynum Cannabinum* were immersed separate rags of linen, cotton, and flannel, after having been dipped in a mordant of alum. The linen and muslin were dyed a fustic yellow, and so fixed, that repeated washings with soap and water did not in the least fade them, but on the contrary, deepened the colour. The flannel was little altered. The dye was rendered of a deep rhubarb colour, and on boiling deposited a copious yellow precipitate. With a mordant of coperas the dye became black, and the colouring matter was precipitated most abundantly into the texture of the flannel, which took a tolerable black, and was permanent. By boiling down this dye, an excellent, black, and durable ink was prepared. With alum and

soda a cinnamon colour was produced. The nitro-muriate of tin (the proper mordant for scarlet,) produced a fawn coloured precipitate of all the extractive and colouring principles, and left a supernatant almost colourless fluid above. This precipitate was insoluble either in water or alcohol.

Hence we may infer that the plant contains tannin in considerable quantity, from the fact that black was produced on adding an iron base; the peculiar principle also, called extractive, from the copious precipitate that ensued on adding a salt of tin, those salts being the proper tests* of extractive; and that the colouring matter is adjective† and not substantive, from its residing in the extractive portions soluble in water, and requiring only a change of mordant to produce a different colour.

From the circumstance that the colour was rendered deeper by the alkaline principle of the soap, the idea occurred to me, whether the colouring matter might not be combined with the fecula of the plant, as in the Rocou of the American tree *Uruca*, the Archil of the *Lichen Parellus*, L. of Auvergne, and the Indigo of the *Indigofera tinctoria*, L. of St. Domingo, with some others; alkali or lime being the proper mordant to precipitate these colours, and hot water a solvent of fecula. Inasmuch, however, as these are substantive colouring drugs, the analogy cannot be maintained.

A fact of some importance is, therefore, deducible from the above experiments; that, indeed, on which the utility of this plant as a colouring material alone depends; viz. that the energy of the affinities of its colouring matter, both for the stuffs and bases applied to them, is such as to produce a permanent colour. The effect of the dye upon the different stuffs used as above, afford an example of the force of these natural affinities; wool, according to Bancroft,* having a stronger affinity for the metallic bases than any other known material.

Before I dismiss this part of my subject I beg leave to notice another, perhaps more useful property, this plant possesses, in

* Vide Thompson's Chemistry, volume iv. page 55.

† Vide Bancroft on Colours, volume i. page 341.

* Vide Bancroft on Colours, volume i. page 345.

relation to the purposes of the arts. I mean its hemp-like quality; and in illustration of which, I can advance nothing so appropriate as a quotation from the paper of E. C. Genet, Esq. "On the economical utility of the *Apocynum Cannabinum* and *Asclepias Syriaca*, natives of the state of New York, communicated to the society for the promotion of useful arts in 1810."*

After mentioning its near relation to the *asclepias* and that all are indiscriminately called by the farmers, silk, cotton or milk-weed, he thus proceeds: "Leaving for the investigation of the chemists the medicinal qualities of the roots and juices of these plants, I shall consider only the economical benefits that might result from their cultivation.

"The *apocynum* or Indian hemp grows profusely on our low lands. Its blossoms like those of the silk-weed are purple, and the pods also contain a quantity of silk, though less than the silk-weed. But the coat of its stem is far superior in strength to the hemp.

"I caused to be water-rotted a considerable quantity in 1804, and obtained an excellent hemp as white as snow, remarkable for its strength, which proved to be double to that of common hemp.

"I have been informed that the Indians called *Mowhicans*, who formerly inhabited the land where my plantation is situated at Greenbush, on the east bank of the Hudson river, below Albany, made a great use of this plant, and not many years ago were still in the habit of coming from the distant place where they now dwell to collect it. Several of my oldest neighbours have assured me, that the ropes and yarn which they made from the fibres of that plant, were far superior for strength and durability, to those made of flax and hemp.

"That sort of *apocynum* being perennial could be cultivated and multiplied to the greatest advantage, and being more natural to low and overflowed lands, could render profitable certain pieces of ground which are now totally unproductive.

"The *apocynum cannabinum* in its natural state, is lower than the silk-weed, but cultivated it would probably grow larger and liberally reward the attention paid to its improvement."

* See Transactions of the Society, &c. volume iii. page 153.

Medicinal Qualities.—Case 1st. August 7th, 1825. Martha P. an aged lady in Kensington. Dropsical affusions following intermittent fever. After an alterative bleeding and some opening medicine, she took for three days an infusion of the galium aparine, which produced copious diaphoresis, and had some effect upon the unrrinary organs. I then ordered blisters to the ancles, and gave her pills of gr. iii. each of the extr. apocynum cannabinum, one to be taken three times a day; and from her wonted diet of ham, salt mackarel, &c. with the leguminous garden vegetables, restricted her to a farinaceous diet and the light meats.

On the 13th, her urgent symptoms were meliorated. Pills had proved cathartic, also excited nausea but not vomiting. On the 15th, the anasarca was evidently diminished, but as she complained of load at the pit of the stomach, costiveness and sickness in the morning, I ordered her gr. xv. of the powdered root to be taken in the morning fasting, directing her if it vomited to drink freely of warm water, and if it purged to take plentifully of oat-meal gruel.

It operated as a prompt and efficient emetic, brought off much bilious matter from the stomach, and also proved cathartic. The anasarca of the feet and ancles, and the bloating of the abdomen which had excited much alarm in the patient's mind, were from this time found to be daily diminishing. The use of the pills as above mentioned was continued, and strict regard paid to diet.

On the 25th from being unable to go out at all, she was so far restored as to be able to visit the infirmary, when she declared herself in better health than she had been for six months. As a preventive of costiveness she was ordered the following pills:

R. Pulv. Apocyn. Cannabin, ʒi.

Aloes Soc. - - ʒss.

Ol. Cinn. - - gtt. iij.

Sapo Cast. - - gr. xx.

Mucilage Gm. Acac. q. s. M. f. pill xxx.

S. One to be taken morning and evening.

Aug. 14th. Case 2d.—Charles A. aged twenty-five years, shoe maker, Arch-street. Intermittent fever. Commenced in April last, had been treated with emetics, cathartics, &c. followed by the bark, which had interrupted the paroxysms, but on discon-

tinuing the bark, had now returned. Complexion very sallow. I ordered him two powders, gr. xv. each, of the apocynum cannabinum, one to be taken that evening, and the other on the following day, an hour previous to the expected paroxysm. The effect of the first was that of a salutary emetic; no cathartic effect. The day following, agreeably to his directions, he took the other powder. In half an hour, felt the precursory sensations of coldness, yawning, lassitude, numbness, &c. The medicine soon took effect, vomited him freely, and so restored the balance of the circulation as to remove all sensations of the approaching chill. The symptoms at length returning, vomiting again subdued them, and so for several times successively; to use his own language, "it broke the fit." The stages, which before had been very distinct, were on this occasion but imperfectly developed; general perspiration and quiet sleep soon followed.

Two days after this, a change of weather occurred, in which the thermometer sunk from ninety to sixty-eight degrees, with cold northeast wind and rain, yet the paroxysms did not recur until the end of two weeks; when they again appeared and the liquor arsenicalis was had recourse to, which effected a cure. In the interim however, I gave him small doses of the apocynum, such as the stomach would bear, combined with opium and nitrate of potash in the form of Dover's powder. Whether this preparation had any effect in preventing the sooner return of the paroxysms I will not pretend to say: probably however, had the ipecacuanha been administered throughout, in its stead, the result would have been similar.

Convinced by these exhibitions of the plant, that it possessed at least virtues in common with other emetics, I next determined to see by a trial of its powers upon my own system, whether any thing peculiar attended its operation. Accordingly, Aug. 20th, I weighed out two powders of gr. xv. each, mixed one with a tea-cup-ful of warm water, and commenced taking it in the morning at a-quarter before twelve, fasting: in usual health, pulse seventy.

I began with two table-spoonfuls; in fifteen minutes felt a slight nausea, took two spoonfuls more, and in another fifteen minutes took the remainder, which provoked efforts to vomit.

After fifteen minutes more had elapsed I mixed and took the other powder, with a difficulty however unpleasant to reflect on. At one o'clock I vomited slightly, felt weak and sleepy, and went to bed. Drinking warm water would then doubtless have provoked full vomiting, but I chose to wait the effects of the medicine alone. After getting quiet in bed, I examined my pulse, and found it fifty strokes to the minute.

I had some headach, felt bewildered, drowsed, and fell asleep. I slept for more than an hour; was then awakened with extreme sickness followed by two spells of full vomiting, in the interim of which I examined my pulse and found it forty-five to the minute. About a quart of fluids together with the powder and some bilious matter were thrown off. I felt the stimulus of it passing onward into the intestines, and judged that it would also prove cathartic; which it did on the following morning in a gentle way, without any griping, and kept the bowels in a soluble condition for a day or two. While under its immediate effects I noticed a very considerable increased secretion of mucous and saliva from the mouth and fauces, which kept me constantly spitting, and also an augmentation in the secretion of urine. Upon the whole, relative to its operation, although it produced a very great diminution in the frequency of the pulse, yet it occasioned none of that death-like prostration I have always experienced on taking the tartar emetic, and although its bitter sub-acrid taste is very persistent in the fauces, yet I think it no more disagreeable to take than the ipecacuanha, while at the same time it operates as effectually as either. It will however, perhaps, be objected to on account of the tardiness of its operation: on this score it requires further trial, and in larger doses, before determining. Relative to myself, I can remark, however, that I have been obliged to take as many as sixty grains of ipecacuanha, with a less speedy, and less efficient operation than I experienced from this potion. I never to my recollection took an emetic that had so tranquillizing an effect, operated so fully, and at the same time produced so little debility. Its operation in my case would at least suggest an inquiry into its properties, whether it may not unite an anodyne principle with its emetic qualities?

Case 4th.—The result of this case gave me very considerable

confidence in the remediate powers of the apocynum when applied to that form of bowel affection so common among children during the hot season, and known by the name of *summer complaint*. The little patient to whose case I allude is the son of Mr. J. W. living in Cypress Alley, and aged two and a-half years. He was subject to frequent attacks of croup, for two of which I treated him during the spring and early part of summer, and in both of which instances, but especially in the last, I was obliged to use prompt and copious depletion by the lancet, followed by the application of leeches and blisters to the thorax, inasmuch as the inflammation was extended to the bronchiæ and seemed to threaten a speedy effusion. Antimonials, calomel and the warm bath were likewise resorted to. I speak of this only in relation to that state of debility which ensued, and particularly that of the digestive functions, which seemed the connecting link in the chain of morbid affections between his inflammatory attack and that obstinate derangement of bowels that ensued, above alluded to.

It commenced during the convalescent state of the child, in the fore part of the month of July, and was not subdued until September. Considerable febrile action was generally present, as manifested by the irritated pulse, parched skin, and constant thirst. The nature and quantity of the discharges from the bowels were very variable, passing through all the shades from a dark green or muddy appearance, to that of a light clay colour; sometimes more copious than at others, but always more than natural. I had during the course of some three or four weeks prescribed most of the remedies usually had recourse to in like cases, such as calomel, oil, laudanum, rhubarb, magnesia, and also some particular anthelmintics, as the child had many symptoms of worms; with at most, however, but a mitigation of the complaint. The child was removed to the country, where it spent two or three weeks, and returned considerably improved. The bowel affection, however, soon became worse than ever; the abdomen was prominent and tender, the thirst excessive, and the child though naturally fat had now become emaciated, and inclined to lie constantly upon his belly. It was indeed pitiful to behold the little sufferer lying in this condition and almost continually crying for cold water.

In this state of things, Aug. 26th, I discontinued the use of the powders of calomel and rhubarb the child was then taking, and substituted doses of grs. ii. each of the pulv. apocyn. cannabin. at intervals of three hours; and on the next morning, twenty-four hours from the commencement of them, I was happy in being informed that a favourable change had taken place, both in the appearance and frequency of the discharges.

The powders were regularly persisted in for a week, and the child's health went on rapidly improving. Neither vomiting nor purging was produced, but the morbid heat and thirst were allayed, the stools became natural, the sin soft and moist, and the functions of digestion and assimilation were gradually restored, and the child is at this time fat and healthy.

Case 5th.—In this case I tried the effects of the powder given in small doses, as a diaphoretic and expectorant.

It was a case of pneumonia, that occurred in Mrs. M. residing in Cypress Alley, Aug. 29th, and was treated on the usual antiphlogistic plan, substituting, after depletion, nauseating doses of the apocynum for ipecacuanha. It was exhibited in the humid way, gr. xv. to half a pint of warm water, and a table spoonful of this taken every hour. The nausea produced, after a few hours, was so oppressive that the patient omitted taking it; but it was afterwards taken in diminished doses, for two or three days. The effects were such as I should have expected from the like exhibition of the ipecacuanha. Arterial action was diminished, diaphoresis and expectoration promoted. As the patient was in a puerperal state and had nervous symptoms, I added, each evening to a dose of the apocynum, thirty drops of laudanum. The stitching pains and cramps were relieved, a gentle sweat occurred, and the patient rested well during the night. On the 5th day from the attack she convalesced, and recovered rapidly.

Case 6th.—Mr. D. J. aged twenty-one years, was a patient who visited the infirmary, and who was under treatment for an ammaurotic affection.

Being under the use of general and strong evacuants, he was ordered, Sept. 7th, gr. xxx. of the apocyn. cannabin. It operated as an efficient, though not speedy emetic, and occasioned several evacuations downwards. On the 9th, he again took of

it, but in larger quantity, viz. gr. xl. which vomited in thirty-five minutes; and in the course of an hour operated five or six times. During the day it purged about the same number of times. On the 11th, he took gr. lx. which produced full emesis and catharsis, as before; not differing from the operation of other emetico-cathartics, unless it were in producing a greater disposition to sleep.

Case 7th—Was one of general debility; the most prominent symptom being incontinence of urine. The patient, Sarah R. was a black servant residing in Bedford-street. I prescribed for her, September 8th, in conjunction with proper diet and regimen, the tincture of the apocynum cannabinum to be taken in doses of twenty drops three times a day. It produced nausea, and even efforts to vomit. The dose was reduced to fifteen drops, and continued for about a week, but as no good effect resulted from its use, it was superseded by other remedies. It was complained of as being extremely disagreeable to take.

Case 8th.—This case, I find in my notes, to be an old affair of chronic rheumatism; and the patient, (whose name I had omitted to mention,) a washer-woman living in Small-street. Several of the swellings upon the limbs and joints had run into a state of foul ulceration; she had been a patient in the Philadelphia Alms-house; was an habitual opium eater, and had applied probably to the Infirmary, more with a view to procure opium than with an expectation of receiving permanent relief. I find that from the 10th to the 30th of September I had prescribed the apocynum in the different forms of powder, decoction, tincture, ointment, and poultice; but all to no purpose in effecting a cure. The evacuations, together with the emollient applications, lessened the inflammation, swellings and sanious discharges, and the appearance of the ulcers, in some instances, was much improved. Relative to the immediate effects of the different applications of the medicine, I see that it showed activity in all its forms. The powder, during its exhibition in a course of emetics, produced full vomiting in doses of gr. 10; and I observe that under the date of the 17th, the decoction produced hyper-emesis and catharsis, that lasted about twelve hours, and

that according to the account of the patient, she must have vomited fæcal matter in the form of scyballe, from the intestines. The decoction seemed most inclined to purge. Upon the whole, considering the extreme susceptibility of the patient to its action in any form, I was led to a careful exhibition of it, and only in small doses.

Case 9th.—This was a case of hernia-humoralis, the patient Mr. T. M. South Sixth-street, during the treatment of which I prescribed several emetics of the pulv. apocyn. cannabin. in doses of about thirty grains, which produced full vomiting followed by purging; and attended with this peculiarity, that the patient uniformly fell asleep, and was awakened by efforts to vomit. The emetics were taken in the morning.

Case 10th. September 14th.—Mr. D. J. S. æt. twenty-six years. Ammaurosis. This being pretty much a hopeless case, though under treatment by the moxa and electricity, together with evacuants; the pulv. apocyn. cannabin. was given both as an emetic and errhine. Administered as an emetic it required large doses to produce full vomiting, viz. sixty grains; which I imputed to the habit acquired from the previous exhibition of strong emetico-cathartics. As a sternutatory its operation was powerful, producing long continued sneezing, with copious secretions from the nose, eyes and mouth. The gentleman afterwards went to reside in New York, and has since sent for a quantity of it, to keep by him as a snuff.

Cases 11th and 12th.—These were two cases of scrofula that occurred in the children of Mr. G—residing in the Northern Liberties. I see from my notes, that from September 15th to October 6th, I prescribed the plant in tincture, powder and extract. It showed its active properties in all these forms, but evinced no tendency to produce a cure. A full dose of the powder occasioned sleep both before and after vomiting. The tincture in doses of thirty drops produced nausea. The extract could not be retained on the stomach, but produced almost immediate vomiting.

Case 13th.—September 17th. A negro man in Small-street desired me to bleed him, for a severe pain in his side. I found also that he had a dysenteric state of the bowels. I bled him,

and gave him a dose of the apocynum which produced vomiting, sweating and purging, and entirely relieved him.

Case 14th.—September 24th. Sarah W. æt. twenty-eight years, came to the Infirmary complaining of gastric symptoms in general. She was ordered a vomit, viz: gr. xxx. of the apocyn. to be taken that evening, and was requested to call next day for some pills. She did so. The medicine had operated well, and greatly relieved her.

Cases 15th and 16th —Were like the last mentioned only corroborative testimony of the activity of the powder, and its adaptation to bilious affections, as a safe, proper, and salutary emetico-cathartic.

Case 19th.—Mrs. B. æt. 25 years—South Sixth-street. When I first saw this woman, September 29th, she was in a paroxysm of hysteria, attacks of which she was very subject to. She was of plethoric habit, and a florid eruption was to be seen on the face, neck and arms. I took 16 oz. of blood, when she became sensible and answered to questions. I found she was troubled in a painful degree with hæmorrhoids, and had been, more or less, since her confinement, a few months previously. I ordered her a pedeluvium that evening, and put her upon a course of emetics of the apocynum, in doses of gr. xx. Local applications and ablu-tions were also advised. The emetics had a very happy effect; the bowels were kept soluble, and in little more than a week the tumours subsided.

Other cases might be added illustrating the utility of this plant and its applicability to the treatment of diseases where full vomiting and purging are demanded.

The root possesses all the medicinal properties of the plant and is active throughout, both in its cortical and ligneous portions. Water or proof spirits is its proper menstruum.

In powder it is an emetic cathartic, expectorant, diuretic and diaphoretics. In decoction it seems to lose some of its emetic properties, and to act more upon the bowels as a hydrogogue cathartic.

Communicated by Benjamin Welch, jr. M. D. of Norfolk, Ct.

“In relation to the subject of your thesis, all that I know of it is derived from Dr. Ives’ Lectures; my notes are as follows:

Apocynum, *Dogs-bane, Indian hemp.*—The appearance and

sensible properties of its root resemble ipecac. except it is more bitter. There are several species. It is inferior to ipecac. requires larger doses, and is not so much of a diaphoretic. It is a milky plant, and when recent is acrid. Used as a lotion to cure itch and other eruptions; used as a sternutatory; perhaps it is one of the best that is used for this purpose. It is formed into a powder called cephalic snuff. In haste,

I am truly yours,

BENJAMIN WELCH, Jr."

Dr. M. L. Knapp.

Aug. 22d, 1825.

Since my Thesis was handed in, I have received from the highly respectable source of Dr. Parrish of this city, (as well as from the patient himself,) the following particulars of a perfect cure of dropsy that was effected by this plant. I have obtained leave to annex them in this place.

The patient, Mr. J. Morgan, a very respectable gentleman of about fifty years of age, and now residing in Lodge-street, was treated by Dr. Parrish during the last summer for a confirmed dropsy of the belly, that had been accumulating for upwards of a year. The Doctor informs me that a rigid course of treatment was for a long time persevered in, but that the whole routine of remedies, cal. squill crem. tart. jalap, &c. entirely failed.

The necessity of tapping was more than once urged, but the patient steadfastly refused.

It now occurred to the Doctor's mind, that some years since, while traveling through the lower part of New Jersey, a young man came under his notice, in whose case an astonishing cure of dropsy was said to have been effected by a nostrum prepared from a plant that grew common in that section, (and which was the Indian hemp,) by an old herb doctor, a native of India, and who now resided in town. The patient was informed of the particulars. The old East Indian was found, the plant obtained from Jersey, and a decoction prepared of about the colour of the white wines, and a wine-glassful taken three times a day.

Its effect was that of a hydrogogue cathartic producing (as the patient himself informed me) as many as forty copious watery stools in twenty-four hours! It also occasioned great sickness and vomiting. The system was soon relieved of all dropsical effusion, and in two months time, without the aid of any other remedy whatever, the patient's health and strength completely re-established.

This gentleman has since recommended it to some of his acquaintances labouring under dropsy, and in general with the happiest effects. I was referred to the brother of one of the patients, Mr. Dallat a respectable tallow Chandler in Market-street, whose sister had been much relieved of a dropsy of ten years standing by the use of a decoction of the root, as in the above case, and continued only for one week. The friends believed that a complete cure might have been accomplished in her case, had she received a sufficient supply of the plant to have continued it longer. The enormous swellings of the lower extremities entirely subsided, and the patient's body was reduced nearly to its natural size. The lady resides in the country, towards Lancaster, and is about forty years of age. She has since been supplied with the drug, but her constitution being much enfeebled, she has not had courage again to undergo the severity of its operation.

Chemical Analysis. Process 1st.—August 9th. A watery decoction of the roots of the plant being made, it was subjected to

the following re-agents or tests. 1. A solution of gelatine flung down a brown precipitate. 2. The salts of iron caused the liquor to assume a black colour, and threw down a copious black precipitate. 3. The acetate of lead threw down a brownish precipitate. 4. The salts of tin immediately occasioned a very copious fawn coloured precipitate. These show clearly that tannin and extractive are prominent principles in the plant.

Process 2d.—Aug. 10th. To two ounces and a-half of the recent root, bruised, were added oz. viii. of alcohol. This was steeped for two weeks, when it exhibited the following appearances and phenomena. Colour that of the white wines; taste disagreeably bitter. A few drops of water let fall into a portion of it occasioned a turbid appearance; poured in, in larger quantity, the mixture assumed an opaline appearance, and on standing let fall a white flocculent precipitate. A given portion of it being evaporated to dryness, a dark brown-coloured extract was obtained, exhibiting the properties of resin united with some impurities; and by which it was ascertained that alcohol, at the temperature of the atmosphere, takes up 1.041 per cent. of its weight, or about gr. v. to the ounce. Of this .666 parts per cent. were found soluble in water, leaving .375 per cent. of resin.

Process 3d.—Aug. 11th. Two ounces of the recent root sliced, were put in maceration in two ounces of sulphuric ether. On the 19th the following phenomena were shown with it. Poured into alcohol it rendered it permanently turbid. Suffered to evaporate over water, a cream coloured substance was left, that exhibited all the sensible properties of caoutchouc. A small dark coloured rod, repeatedly dipped in the solution, and the ether suffered to evaporate each time, received a sensible coating; showing that bougies, or catheters, might perhaps be constructed of it.

Process 4th.—Aug. 16th. An ounce of the pulverized root was put in half a pint of water, and digested for a week in a cool place. The liquid then had assumed somewhat of a yellowish colour, and gave a very persistent bitter taste. It was filtered and submitted to the action of the following re-agents.

1. The vegetable alkalies and lime water occasioned no precipitate. 2. Nitrate of silver rendered the solution of a pur-

plish colour, and threw down a very soft flaky brown precipitate. 3. Tartar emetic produced no change. 4. Corrosive sublimate had no effect. 5. Muriate of tin occasioned no precipitate. 6. Acetate of lead threw down a copious yellowish-white precipitate. 7. The sulphates of zinc and copper produced no alteration.

From these experiments I warrantably inferred that I had obtained another of the proximate principles of the plant, viz. the bitter principle; inasmuch as Thompson* declares that the “nitrate of silver and acetate of lead are the only two bodies which throw it down.”

Process 5th.—Oct. 25th. Two ounces and a-half of the pulverized root were digested for some hours in oz. iv. of sulphuric ether, in a retort, with a gentle heat. The heat was then increased, the ether driven off, and oz. iv. of alcohol added. The process was conducted for some hours again over a gentle heat, and then the alcohol made to boil, when it was poured through a searce, and the powder treated with fresh portions of alcohol as long as it imparted to it any colour. This, on cooling, let fall a copious white, or yellowish-white precipitate, which had a waxy appearance and feel. When heated in an iron spoon, it melts, froths, swells up, smokes, and then takes fire and burns with a vivid white flame, and leaves a light flaky charcoal in very minute quantity behind. The alcohol was found to redden litmus paper, and to yield a copious precipitate on adding a weak solution of gelatine. A portion so treated, was evaporated to dryness by a gentle heat, which left a semi-transparent yellowish substance behind, which was at first hard and brittle, but which deliquesced in the atmosphere. This was referred to Professor Barton for his opinion upon it; to whom there appeared so strong a similarity between it and the cinchonin, in all its sensible properties, that he judged it would be difficult to discriminate between them. This was re-dissolved in water, filtered, and again evaporated to dryness. The residuum consisted of light scales of a brownish colour, possessing a degree of metallic lustre.

These scales melt readily upon the tongue, and communicate

* Vide Thompson's Chem. vol. iv. page 48.

a taste, that is at first of a mawkish sweetness, but soon betray in an intense degree, the peculiar taste of the plant. I had not an opportunity of ascertaining the effects of this product upon the system, the servant having destroyed it by cleansing the china-cup that contained it.

Process 6th.—A quantity of the pulverized root was digested first in ether, then in alcohol, and treated with successive portions over a sand bath until the liquor came off colourless. The whole, when cold, was filtered, evaporated to dryness over a water bath, re-dissolved in water, again filtered, and digested for twenty-four hours upon the carbonate of magnesia. Alcohol was then freely added, and the magnesia thoroughly washed, and being separated by the filter, the evaporation was again conducted to dryness, over a water bath at the boiling temperature.

The result was a semi-transparent yellowish-brown, or sugar coloured mass; hard, brittle, and exhibiting a resinous or micaceous fracture.

It is slightly deliquescent, of a mawkish-sweetish taste, becoming sub-acrid, bitter, and very persistent, and occasioning a swollen sensation of the lips and tongue.

Given in doses of from three to six grains it excites full vomiting, followed by sleep, prostration, purging, and temporary ptyalism.

It bears some analogy in its characters to emetin, but more I think to cytisine, of the *cytissus laburnum*; and being the peculiar principle of the apocynum in which its active properties reside, in a state approaching to purity,* is justly entitled, I think, to the appellation of *Apocynin*.

From this analysis of the plant, rude and unfinished as it is, it appears that the following are proximate principles of it:

1. Extractive colouring matter.
2. Tannin.
3. Gallic acid.
4. Resin.
5. Wax.

* This preparation contains, I think, besides apocynin, bitter principle, and suggests the use of acetate of lead in its further preparation.

6. Caoutchouc.
7. Bitter principle.
8. Fecula.
9. Woody fibre.
10. Apocynin, or the peculiar principle in which its active medicinal properties reside.

To conclude, I must claim the indulgence of those who have gone before me, inasmuch as no definite rules have yet been laid down for the chemical analysis of vegetables; but in every particular case, the analyst must, as it were, invent a method for himself, follow his own judgment, and be guided by his own experience, progressing with the slow pace of the self-taught pupil.

It is apparent, that the science of vegetable chemistry invites to its cultivation, and greatly is it to be hoped that the spirit of research and discovery, so remarkable in our countrymen, will, on this subject, become more operative. The materia medica so far from being redundant, as some have supposed, is doubtless destined to be much farther enriched with the concentrated or peculiar principles of vegetables, that will in their application be found preferable to many of our mineral products, those banes, too often, of the health and constitution, which, like the Vampyres of Java, eventually destroy the blood, while they lull in present security the unsuspecting victim.

Nearly connected with the march of these improvements is a cultivation of the science of botany; which, so far as my observation extends, is at present a neglected subject, a system of botany scarcely finding its way into the libraries of the physicians of our country; and though students may resort to the schools for instruction, still it there constitutes no part of the usual routine of their studies. Would it not be better for science and the profession, were our medical schools to be endowed with a professorship of botany, and a thorough knowledge of its principles made necessary to graduation? Should this plan be adopted it is but reasonable to suppose that a more general spirit of research would pervade our country, and ere long should we be able to reverse the position of the poet, and say,

*Not "many a flower is born to blush unseen
And waste its sweetness on the desert air."*

QUARTERLY HISTORY

OF

IMPROVEMENTS IN MEDICINE, SURGERY, &c.

ANATOMY.

1. *Lachrymal Nerve*.—It is stated in the Medical Repository, on the authority of a private letter from Paris, that M. Amusat has discovered the lachrymal nerve to be a branch of the pathetic, or fourth pair, and not, as has been hitherto supposed, of the ophthalmic portion of the fifth. It is stated also, that Richerand confirmed the fact. If this turns out to be true, it will be extremely interesting when taken in connexion with the late splendid discoveries of Mr. Charles Bell.—*Anderson's Journal*.

2. M. BOGROS on the *Tubular Structure of the Nerves*.—We mentioned in our last, that M. Bogros had succeeded in satisfying himself, by experiment, that the nerves can be injected, and are therefore tubular. This will soon be determined, for the Academy of Sciences has appointed a committee to examine, repeat, and report upon the experiments of M. Bogros, which we gave in our preceding Number. When we mention the names of Cuvier, Dumeril, Geoffroi St. Hilaire, and Dupuytren, as the members of the committee, our readers will be satisfied that the experiments will be properly appreciated. We should conjecture *à priori*, that M. Bogros has mistaken the tubes of the *vasa nervorum* for the tubuli of nerves.—*Ibid*.

PRACTICE OF MEDICINE AND PATHOLOGY.

3. *Observations on the Saliva during the action of Mercury on the System*. By J. Bostock, M. D.—According to the experiments of Dr. Bostock, the saliva during ptyalism contains no mercury; nor could he trace either alkali or acid in this secretion during salivation. After the effects of the mercury had gone off, however, he found the saliva impregnated with an uncombined acid.

“The conclusions,” he observes, “which we may draw from the above experiments, on the nature of the saliva discharged while the system is affected by the action of mercury, are suf-

ficiently remarkable to arrest our attention. We learn from them, in the first place, that no portion of the mercury is actually present in the fluid, from which it follows that the effect of this medicine, although so remarkably manifested upon the salivary glands, must be produced through the medium of the system generally, and hence we may presume that all the organs destined for the secretion of mucus will undergo the same change. This change would appear to consist essentially in the conversion of the animal matter, from the state of a mucus to that of a serous, or rather of an albuminous fluid.

"Now, although we are not sufficiently acquainted with the theory of secretion to know what are the minute operations which enable the capillary vessels connected with the glands to produce their appropriate fluids, yet we may form some idea of the relation which they bear to each other, as far, at least, as regards the greater or less complexity of the process. All those fluids, for example, which proceed from what are termed serous membranes, appear to differ from the serum of the blood solely in the proportion of albumen which they contain, and we may therefore conceive that they are generated by a process resembling transudation, and that this is, in a great measure, of a mechanical nature. In the secretions, however, which are discharged from the mucous surfaces, we find a change effected which is of a chemical nature, where a new substance is generated which did not previously exist in the blood. In what way the vital functions act, so as to convert albumen into the mucilaginous matter which forms the basis of saliva is, at present, beyond our power to ascertain; but whatever it be, we find that in the case before us, the operation of mercury upon these parts is to counteract the ordinary secreting process, and to reduce the action of the glands to that of mere transudation."—*Med. Chirurg. Trans.*

4. *Fosbrooke on the Relations of the Kidneys and the Brain.*—The title of this brief volume will at once shew the great importance, but greater difficulty of the subject; and Mr. Fosbrooke, who is not unknown as a medical writer, has done himself credit by the line of inquiry which he has started. In so short a notice as this must necessarily be, we cannot go into any of his facts and illustrations; but we shall probably take an early opportunity of laying before our readers what we find in them that is important or novel.—*Anderson's Quarterly Journal.*

5. *M. Flourens on the sense of Hearing and the Causes of Deafness.**—The author from several experiments concludes:—

1st. That the destruction of the tympanum and hammer do not materially affect the hearing.

2d. The removal of the stirrup weakens it considerably.

3d. The destruction of the membrane which covers the fenestra

* Bulletin des Sciences Medicales.

trum ovale (the stirrup being still removed) weakens the auditory sense still more.

4th. The replacing of the stirrup restores to it some degree of energy.

5th. The rupture of the semicircular canals renders suddenly the hearing painful and confused, and causes, at the same time, a quick and violent agitation of the head.

6th. When the vestibule is exposed, there does not result any remarkable affection of the hearing.

7th. The partial destruction of the nervous expansion in the vestibule partially destroys the sense. The complete destruction destroys it entirely.

The part therefore, most essential to the function, is the nervous expansion of the vestibule; and strictly speaking, it is the only indispensable part, the others merely contributing to the extension, the energy, and modifications of the function, or to the preservation of the organ.

In making a practical application of these experiments, there is one cause of immediate and absolute deafness apparent, namely, the destruction of the nerve or of its expansion in the vestibule; and there are several causes of dulness of hearing, such as the destruction of the stirrup, of the vestibular orifices, and of the walls of the vestibule and semicircular canals.

The previous experiments of M. Flourens having shewn that the sense of hearing is lost by the removal of the cerebral lobes, without any part of the ear being touched, it follows that the loss of the organ of sense is completely distinct from the loss of the organ of sensation; and as each of these species of deafness is attended by peculiar symptoms, we may hence be able to ascertain the part affected; and, having discovered the seat, may thence determine the comparative importance and severity of the disease.—*Ibid.*

6. *M. Meyraux on the Cauterization of the Pustules in Small Pox.**
—Experience has proved to M. Meyraux, that cauterization, in order to be beneficial, must be practised the first or second day of the eruption. When employed later, it has not the effect of destroying or preventing the formation of the pustules which follow their regular course, and leave the usual marks and excavations in the skin. Many methods of using the caustic have been practised; that most commonly adopted, is to wash the part with a solution of the nitrate of silver; but the author objects to this method, and mentions many inconveniences attending it, the first of which is, that it acts upon the sound as well as upon the unsound parts; and the second is still more forcible, for he asserts, that the development of the pustules still goes on under the black crust, or mask, to the same extent as if it had not been employed. The safest method, according to

* Archives Generales.

M. Meyraux, is to open the pustules one after the other, and to apply to them a piece of the lunar caustic in the shape of a pencil; for the purpose of opening them, a lancet is the best instrument. It is a very curious circumstance, that the passage of the galvanic fluid, which never produces the inflammation of any organ, completely extinguishes the pustules of small-pox. The most efficacious method of producing this almost instantaneous effect, is to make use of a very fine needle, which is to be placed in the pustules, and the voltaic fluid is to be made to penetrate them. As the success of cauterization is subordinate to the general treatment of the patient, none of the usual indications of cure are to be neglected. The author has remarked, that the application of the caustic only becomes useful when the inflammatory action has been subdued, either in the principal viscera, or in the skin, when the inflammation of that part predominates; for then the general re-action becomes more intense, and the suppuration of those pustules, which have not been destroyed, is more abundant. M. Meyraux has proved, that the advantages of this plan may be extended to cases of boils, venereal pustules, the chicken pock, and some other eruptive diseases.

A warm discussion on this subject recently took place at Paris, between some of the most eminent practitioners, but the general impression seems to have been unfavourable to this new method of treating small-pox.—*Ibid.*

7. *Dyspnœa. Singular Case of.*—The subject of the present article was a woman; about twenty years of age, who had enjoyed good health until about a week before the time referred to in the following extract, when she began to complain of some difficulty of breathing. This had, it appears, increased so much, that the relatives now considered the case as entirely hopeless, as we are told.

‘Indeed,’ the mother said, as we were going towards the bed-room, ‘you are quite too late, sir, you can do no good.’ Upon entering the room, I found the respiration so very laborious, and at times so interrupted, that I was of the same opinion. Bleeding, and various other remedies, had been tried during the three days preceding the time of my visit, without any good effect whatever. I directed the mother to make a long and broad *bandage*, which we applied pretty tight round the thorax, and a good part of the abdomen. The respiration gradually became more easy, and in the course of twenty-four hours it became so easy (*it had become*,) that the poor patient could walk gently about the house.—*Dr. Gilby, of Clifton, in a private letter, dated October 31st, 1825, and quoted in Lond. Med. Journ. for Feb., p. 174.*

Observations.—We leave our readers to form their own conjectures respecting the nature of the disease in this case; and to admire, at their leisure, the elegance of the style in

which the particulars of it have been conveyed to us by the reporter.

8. *Observations upon Diseases of the Nervous System.*—By M. SERRES, Physician to the Hospital la Pitié.

Account of an Organic Change in the Nervus Trigessimus, accompanied with the loss of Sight, Smell, Hearing, and Taste of the same side.—Hubertin Joseph Lainé, twenty-six years of age, a potter, entered my department of the Hospital la Pitié, on the 29th of September, 1823. His constitution was delicate, his temperament lymphatic, and his life had been regular, but he had been somewhat addicted to masturbation.

His general appearance was dull; his physiognomy was that of an imbecile man; he appeared to understand slowly the questions that were put to him, and had much difficulty in finding words to answer them. His pronunciation was difficult, and evidently made with considerable effort. His head was so large that some of the pupils imagined that hydrocephalus had commenced, and that there was a separation of the temporal and parietal bones; but the prominence of the eyes induced M. Serres to form a different opinion. There was a slight separation between the os maxillare and zygomatic process of the temporal bones, with a consequent flattening of the nose. The bones of the right side of the face were rather larger than those of the left, rendering the former the most prominent. The patient had some difficulty in moving his tongue. The sensibility and power of motion in the limbs seemed no way diminished, though sometimes he appeared to use the inferior extremities less freely than the superior. Such were the circumstances in which he was found. M. Serres learned also that he had been subject to epilepsy, the first attack of which had commenced two years before, without any assignable cause. He had a deaf and dumb sister.

The attention of M. Serres was first directed to the epileptic attacks, which were frequent, and always commenced with convulsions of the right side. The right eye also was affected with scrophulous ophthalmia. Some circumstances having been observed in this patient similar to what had appeared in another individual who had died of epilepsy, and the appearances of whose brain on dissection were somewhat remarkable, M. Serres endeavoured to learn from Lainé his sensations during the paroxysms. The effort however he made to comprehend and answer the questions had very frequently the effect of inducing the paroxysms, so that M. Serres was compelled to omit his inquiries from the patient himself.

The change of circumstances, and the quiet in which he was placed, made a very favourable change in the frequency of the paroxysms, which, instead of recurring three or four times a day, as upon his first admission into the hospital, exhibited inter-

vals of from eight to twenty days. His appetite returned, he gained in flesh, and enjoyed better spirits.

About the middle of December, the right eye was attacked by ophthalmia, with œdema of the eye-lid, and opacity of the transparent cornea. A seton was inserted in the nape of the neck, and the inflammation diminished, the opacity of the cornea, however, at the same time increasing, so that when the ophthalmia had disappeared, the cornea had become perfectly opaque. The epileptic attacks were renewed with their former frequency, and principally in the night. The convulsions were confined to the right side, and consisted in an alternate flexion and extension of the leg and arm, but chiefly of the latter, with occasionally a tetanic rigidity of these limbs, of some minutes' duration. Having been led by some of Magendie's experiments upon the nerves, to suspect that this was an affection of the fifth pair, his attention was directed to the nostrils and tongue. The right nostril was insensible to stimuli; the left eye and left nostril were in their natural state. The tongue at this time, June 1st, 1824, exhibited nothing peculiar. On the 7th of June, the right eye and nostril were in the same condition, and pepper placed upon the right side of the tongue made no impression—placed upon the left, it produced a strong impression. On the 20th, the gums of the right side were slightly inflamed, and had the appearance of incipient scurvy. The hearing of the right side was not affected. The gums on the left side were sound.

On the fifth of July, dyspnœa was observed; the scurvy increased; the left gums still were unaffected. Towards the 16th, these also were comprehended in the disease. About the 4th of August, the hearing on the right side was diminished; but improved again after the application of a blister. It remained, however, still less than on the left side. On the 11th of August he died.

The body was opened the next day. The internal surface of the dura mater was injected on the right side; on the left it was thickened, and of a dirty-white colour. The tentorium cerebelli still were thickened, and adhered to the upper surface of that organ. The brain was removed from the skull with great care: but the trunk of the fifth pair was nevertheless detached from the annular protuberance in raising this last part.

The dura mater was detached from the right spheroidal ossa, and the ganglion of the right nervus trigessimus on the right side was in an unusual state. The ganglion was swelled, and of a grayish-yellow colour, and the fibres were separated by effused serum. Internally, the part of the ganglion from which the ophthalmic nerves arose, was red and injected. This redness extended also to the dura mater, covering it. At the posterior part of the ganglion, the nervous fasciculi were isolated by se-

rum. The internal fasciculi were of a duller white than the external, but both were darker than usual. The alteration of the ganglion extended forwards in the three principal branches. The affection of the ophthalmic branch appeared the oldest, and the inferior maxillary nerve was more altered than the superior. These three nerves were of a dirty yellow, which colour continued to their issuing from the cranium. The right optic nerve, just behind the eye, was less than the left. In the remainder of their passage these nerves were similar. That part of the annular protuberance corresponding to the origin of the right nervus trigessimus, exhibited the same yellow gelatinous matter as was found in the extremity of the nerve. The left hemisphere of the brain was softened more or less throughout.

The details of this dissection, given by M. Serres, are extremely lengthy. We have, however, we believe, extracted all the important circumstances.

To this case M. Serres has added, that two similar instances in the incipient stage have been cured, under the superintendence of MM. Magendie and Edwards. We cannot, however, say, that we feel satisfied that the cases are the same, neither has M. Serres stated the mode of treatment that proved so successful. Should any detail of these cases be hereafter given, we shall feel it our duty to lay them before our readers.—*Editors.*

9. *Epileptic Convulsions from slight injuries on the Head, by Dr. Blake.**—A young man, of a bilio-sanguineous temperament, a private soldier in the 5th regiment of foot, then stationed at Dominica, received, whilst wrestling with a robust comrade, a blow from the clenched hand of his opponent on the centre of the *right* parietal bone.

This was on the 4th of February (1824), and on the 8th the young man was admitted into hospital with the common symptoms of fever, which yielded to the usual antiphlogistic treatment in a few days. The headach, however, which had hitherto been considered merely as a febrile symptom, remained after that state was removed, and even increased in violence; the tongue, at the same time, becoming extremely foul, and the pulse unusually slow.

For these complaints, blisters were applied to the head, purgatives were exhibited, and bleeding, both general and local, was employed; mercury also was administered, and as soon as its peculiar action became manifest on the system, the headach, &c. ceased, and the man was discharged from hospital, in apparent good health, on the 24th of the month.

On the 29th, however (that is, on the fifth day after,) he returned to that establishment, complaining of pain in the whole of the upper part of his head; the pulse at the same time being

* Lond. Med. Jour. for Jan. 1826.

as slow as sixty in the minute, the tongue loaded, and the pupils much dilated.

A repetition of the treatment, which had already proved successful, was now put in practice; but not with a similar result, for the patient did not experience the slightest relief; and on the 2d March (third day after re-admission,) he was seized, at about two o'clock P. M. with a fit of *epileptic convulsions*; on recovering from which, he was found to be affected with *paralysis* of the *left* side.

The epileptic fits were shortly renewed, and continued with very little intermission for about five hours; when the stertorous breathing, the rattling in the throat, the state of the pulse, and the general appearance of the man, all indicated the near approach of death. Under these circumstances, bleeding, the croton oil, and active enemata, having been already tried in vain, it was determined, in consultation, to apply the *trepphine* to the site of the original injury on the side of the head.

Accordingly, about seven o'clock, P. M., Dr. Blake, in the presence, as he informs us, and with the assistance of Staff Surgeon Ramsay, proceeded to remove with this instrument a portion of the *right* parietal bone. In doing this, it was observed that the bone was very thick, and that but little adhesion seemed to exist between it and the *dura mater*. The inner surface of the bone, however, did not exhibit any irregularity calculated to irritate the *dura mater*; nor was there any fluid effused upon that membrane—nor any appearance of effusion or supuration having taken place beneath it; yet the moment the circle of bone was removed, the epileptic paroxysms, previously so severe, became considerably mitigated; and in a few hours thereafter ceased altogether. In less than a month, also, the paralytic affection of the left side entirely ceased; and the man having been sent to Europe, was soon restored to perfect health.

Observations.—This case is very creditable to Dr. Blake, and may be considered as a fair specimen of bold and judicious practice, modestly and clearly told.

It is, moreover, interesting in another point of view; namely, as a striking example of the serious consequences which sometimes arise from injuries on the head, in themselves apparently trifling, and productive of no marked local effects.

To his practical details, Dr. Blake has added some remarks, upon the manner in which the operation in this case may be supposed to have acted, in producing immediate relief and ultimate recovery. As these remarks, however, are rather of a speculative nature, we must pass them over in silence as not well adapted to this place,* and hasten to lay before our readers

* We feel the less regret in acting thus, as these remarks will probably receive some notice from one of our cotemporaries, upon whom this 'bold dragoon' has discharged a passing shot.

another case of *epilepsy*, &c., which our ingenious author has also quoted as a proper *pendant* for the preceding.

CASE II.*—A man, aged about thirty-five, who had received a slight blow on the head, began some time after to labour under pain in the whole ‘*sincipital* region,’ as the reporter calls it; and in a few months became affected with complete *amaurosis* of both eyes. Remedial treatment was employed for these affections under eminent surgeons, but without much benefit; and in addition to his other maladies, the man soon became *epileptic*. After suffering, in a hopeless manner, with these complaints for the space of six months, the patient fell into a comatose state, and in a few days after died.

On opening the head, it was found that the internal table of the cranium did not adhere with its usual firmness to the *dura mater*; the skull-cap dropping off as soon as the bone was divided all round with the saw. Absorption, also, it is added, had rendered the surface of the cranium unequal (*quere*, which surface?) but no other unusual or morbid appearance is said to have been observed.—*Lond. Med. Repos.*

10. *On the Milky Appearance of the Serum in several Diseases.* By ROBERT VENABLES, M. B. &c.—In the Repository for this month (Vol. xxv. No. 146,) and in the xxvi. art. entitled ‘Clinical Remarks on the Diseases most prevalent during the preceding month,’ I find the following observation: ‘One case of acute pericarditis came before us, complicated with a much slighter inflammation of the lungs. The disease yielded to the usual treatment. *We mention this case in order to notice what has not, as far as we are informed, been before recorded,—the serum of the blood taken from the arm of this patient, at two blood-lettings, exhibited each time a milky or whey-coloured appearance.*’ The appearance above noted has not escaped my observation; and in proof of what I advance, I beg to refer to the preface to my Clinical Report on Dropsies, p. 26. In the note, the following observation upon this subject appears: ‘The report of the appearance on the 12th, at p. 54, and the observation in the note, p. 55, may appear directly contradictory. The observation at p. 54, regards the serum. *A dense milky appearance* I regard as indicative of an inflammatory state of the blood; and in the first impression I had introduced a conclusion to this effect. However, I thought it better to submit this opinion to the test of future experience, before adopting any conclusion upon the subject.’

Farther experience has confirmed the accuracy of this statement; and it must be highly gratifying to me to find my views confirmed under the peculiar circumstances in which they are in the Repository. This appearance, in all the cases, was observed under inflammatory action.

* Case 2.—From Edin. Med. Journ. vol. xvii. p. 322.

With respect to the cause of this appearance, I should doubt it depending on oleaginous matter in the serum. However, it is necessary to state that there are two sources or varieties of this appearance. In the one, the coagulum formed by heat assumes a dense, heavy, and solid consistence. In this case the coagulum readily forms; and under such circumstances an inflammatory state of the blood may be safely inferred. In the other, the coagulum does not form so readily, is more brittle, and resembles more the curd of some milk. This state appears to depend upon an intermixture of chyle, and hence its appearance seems to indicate some defect in the process of sanguification.

In calling your attention to this circumstance, I am far from wishing to dispute either the honour of originality of observation or priority of statement; but I am desirous that the few merits which the publication on dropsies may possess should be plainly put before the public, the more especially as upon several occasions its defects have been sought out with an avidity, and dwelt upon with a degree of sarcasm, which savour rather of personal hostility than a desire for the advancement of philosophy and truth.—*Ibid.*

Henley upon Thames, Feb. 6, 1826.

11. *Cerebral Croup.* By Dr. Pretty.—Perhaps your readers will pardon me if I extend this communication by offering a few observations upon another species of croup, to which young children are subject, and concerning which medical men are a little divided in their opinion. I allude to that peculiar species of convulsive disease, named Cerebral Croup, and which is described by the late Dr. CLARK, in his “Commentaries on the Diseases of Children.” I was first engaged in endeavouring to understand this complaint, in consequence of two of my own children becoming the subjects of it. One of them, after having been for several weeks affected, at indefinite times, with paroxysms of spasms, accompanied with a croupy inspiration, but apparently otherwise in the possession of health, with the exception of an occasional bowel-complaint, was seized with two slight convulsions in the morning; a third occurred in the afternoon of the same day, and which terminated her existence almost instantly. Upon dissection, the blood-vessels of the brain were found unusually loaded, and effusion had taken place into the ventricles, and between the arachnoid and pia mater. Four intromissions of the ilium, without any evidence of local inflammation, were also discovered; but no other appearance of disease. My second child was seized with a convulsion a week after the death of her sister, (they were twins,) which was followed by repeated paroxysms of croupy and impeded respiration, which threatened the production of another general convulsion; symptoms of meningitis supervened, as also those of effusion—such as the peculiar motion of the arm about the head,

frequent startings with screamings, insensibility, squinting and dilated pupil, &c. These very formidable symptoms were removed by leeches to the temples, blistering plasters to the neck and head, with calomel purgatives; but the croupy paroxysms continued for several months, when they ultimately yielded to the exhibition of *mistura assafoetida*, which was prescribed by a medical friend. It appeared here to have been continued by the force of habit, the original cause having been removed long before the spasmodic actions were overcome. The age of these children, when attacked with convulsions, was eight months.

My third child, when seven months old, was taken ill like his sisters. The nurse who had the care of him neglected to give him proper exercise, and moreover frequently fed him with spoon-food, when he ought to have had the breast. He was occasionally disordered in his bowels, as most children are during infancy; and, for some time prior to his illness, he could never bear that active exercise in the arms which a good nurse will always give to a healthy child, without the respiration and circulation becoming so seriously impeded as to give alarm for his safety to all present. The attack of croup was preceded by a few days of febrile excitement, with cough, and sudden startings without any apparent cause. The treatment consisted of the application of leeches, with the exhibition of aperient and saline medicines. He improved under this plan, but the spasms did not leave him. A few weeks after this illness, he was seized with a convulsion, and the same means were again resorted to, with equal benefit; but, the spasms frequently recurring, I was constantly in fear of a repetition of convulsion. I had the child weaned, and sent him a few miles out of town; where, under the care of a more trust-worthy nurse, he gradually lost the complaint, and is now a fine healthy little fellow.

Not fully understanding the nature of this affection, I took every opportunity that presented of asking my medical friends for their opinion; and I am sorry to say that I was, if possible, more perplexed than before, for I scarcely found any two of them to agree, though several stand deservedly high in their profession, and I much respect them for the possession of superior medical talents. I trust that, without giving offence to any, I may say, that by one it was considered to arise from the cutting of a tooth, the obvious remedy for which was lancing the gums: this was done, but no tooth was cut till two months after the complaint had disappeared. The wet-nurse was also recommended to be changed. By another it was a cerebral affection, and serious in its consequences. A third gave it as his opinion that gastric and intestinal irritation was the cause, without any particular reference to the head. By a fourth it was supposed to depend upon local pressure on the recurrent nerve, or its branches: an external application was

recommended, and some alterative medicine prescribed, and the child to be weaned.

About this time the disease had accidentally excited a good deal of attention, and some excellent communications appeared in the different Medical Journals; but concerning its pathology and treatment there seems still to exist a great discrepancy of opinion. Upwards of a dozen cases have been under my care, independent of the experience I have had under my own roof; and in all I have seen such powerful reasons for believing the affection to be produced by cerebral irritation, that I do not hesitate to give it as my opinion, that, in by far the majority of cases, the encephalon was the seat of the complaint; and, although the cutting of a tooth, or the irritation arising from disordered bowels, may occasionally prove the exciting cause, that it mainly depends upon something wrong within the head. In confirmation of my opinion, I would draw the attention of your readers to a paper upon Meningitis, in the "*Medical Repository*," written a few months since by Mr. DAVIES, in which the symptoms there detailed as characteristic of that disease, have been more or less present in all acute cases of this species of croup that have come under my observation.

These spasmodic attacks are very generally the precursors of convulsions, unless means are adopted to prevent them, and then children die of meningitis. This fatal course happened to a child in a family where another had previously died of meningitis, and subsequent effusion. A third child in this family had the complaint a year after, and it continued for three or four months, during which time he experienced two seizures of convulsions, and the latter have more than once returned along with the croupy inspiration, when his system has appeared surcharged with blood; and this was very likely to happen, from being too much indulged with food. Bleeding, purgatives, and blisters, with cold lotions to the head, were the means chiefly used for his relief. The spasms continued for several months, gradually losing their violence and frequency; and he is now five years old, and a fine healthy looking boy. He struggled through a smart attack of continued fever this last spring, which affected his head severely, but produced no return of his former symptoms.

I have also to add, that I lost, in April last, an infant, only three months old, in the same family, which was affected with croupy respiration, repeated convulsions, and every symptom of meningeal inflammation. This infant's alvine discharges had a very unhealthy appearance during its illness, and I have frequently had reason to suspect that such depraved secretions were continual as effects of such seizures. The eldest child, now ten years old, has experienced two attacks of epileptic convulsions within the last two years, and each time was cured chiefly by depletory measures. The parents of this family

have indeed been unfortunate with their children : but such afflicting results are not always met with, as I have experienced the pleasure of seeing recovery effected by the same means in more than half the cases that have come under my care.—*Med. and Phys. Jour.*

12 *Cases of Otitis, or Acute Inflammatory Ear-ache, successfully treated by Emetics ; with Sketches of their remedial Effects in Chronic and Nervous Ear-ache, Erysipelas, Gout, and the Diseases of pregnant Females.* By JAMES KENNEDY, M.D., of Glasgow.—OTITIS may proceed from any of the causes by which the acute local inflammations are determined : the cases described in this article had their origin in the influences of cold air on the general system, and more especially on the seat of the disease : their treatment is original, at least the present writer is not aware of its having a place in medical history.

Sometime in the autumn of 1814, I had occasion to treat this affection in a robust ploughman, in a considerably aggravated form. It was of two days' standing, and its characteristic symptoms occupied the right ear, while the corresponding side of the head, face, and neck, was deeply implicated : at the same time it was intense, obstinate, and seemed to include something of an erysipelatous tendency. Cooling purgatives, blisters over the head and behind the ear, and free sanguineous depletion from the external jugular vein, were the chief remedies employed : their effects, however, were obscure and unsatisfactory ; and the violence as well as extent of the diffuse inflammation which supervened on the puncture of the vessel, induced the resolution of abandoning for ever the practice of venesection in the neck, as a means subservient to the removal of this painful complaint.

During the next twelve months, several cases of the same kind were subjected to similar treatment, with exception of the requisite quantity of blood being abstracted from the arm. In all of them the patients' convalescence was slow ; and in two, the disease assumed a chronic character : these last ended by the persons sustaining a considerable defect of hearing, which has never in any degree been repaired.

Meeting with an intense modification of the inflammatory ear-ache in 1816, I was led by a view of the predominating symptoms to deviate from the ordinary methods of cure in attempting its removal. The patient was a vigorous, florid young woman, and had been exposed to a current of cold air acting on the right side of her head and person, while recovering from a profuse perspiration. On the second day subsequently, her chief symptoms were quick pulses ; hot, dry skin ; hoarseness, and a cough, which aggravated the ear-ache ; stiffness of the right cervical muscles ; suffusion of the whole countenance ; swollen eyelids ; injection of the ophthalmic vessels ; suspension of the nasal secretion ; excruciating pain in the right ear, darting generally in radiating lines over the corresponding temple, and

occasionally taking the form of paroxysms which sent an intolerable stinging sensation into the internal tissues of the head ; and, at the same time, she experienced great restlessness, insatiable thirst, and other febrile manifestations.

With the object of unloading the turgid vessels of the throat, the head, the eye, and other affected parts, and of determining simultaneously a change of action in the disordered vital organs, sanguineous depletion, to be followed by the exhibition of an emeticocathartic evacuant, was held to be the requisite indication in attempting to mitigate the patient's distress. Blood, accordingly, was detracted from the arm, to the extent of thirty-six ounces, when faintness supervened : this state was accompanied with nausea, retching, and a cold sweat bedewing the forehead ; but its effects on the general system were imperfect and transitory. After the lapse of an hour, a powder containing half a drachm of ipecacuanha, one grain of the tartrate of antimony, and five grains of submuriate of quicksilver, was administered in the necessary proportion of treacle, and immediately followed by a free draught of tepid water. It soon commenced operating, but produced only four returns of vomiting, each of which was preceded by intense nausea, and occasioned an abundant flow of tears, and of the salivary secretion, with a discharge of much thin mucus from the nostrils. The ear-ache permanently disappeared during the efforts induced by the second return of vomiting ; and, so soon as this had finally subsided, the woman was placed in bed, and forthwith sank into a state of profound repose, which was disturbed at the end of three hours by a copious alvine evacuation. Two more solicitations of the same nature occurred in the course of the evening, when a warm semicupium, with continuation of abstinence, promoted for the night a tranquil and refreshing sleep. Next morning, all the signs of topical and constitutional excitement had nearly ceased ; and rest, low diet, with mild aperient medicine, brought the patient, in three days more, into her former health.

During the long period which has intervened since, twenty-five cases, in many respects alike, have been treated in exactly the same manner, and with the same results as that of which the history is detailed ; and the legitimate induction from the evidence afforded by these results is, that a judicious combination of blood-letting, with emetics and laxative remedies, constitutes an efficacious and successful mode of subduing the inflammatory ear-ache, when it manifests the acute distinctions. In three of the subjects the emetic required to be repeated ; but in all, one bleeding, varying from ten to forty-five ounces, according to the intensity of symptoms, and the constitutional peculiarities, was sufficient.

Simplicity of practice, however, being at all times desirable, the practicability of dispensing with venesection in this disease presented itself to my mind, and led to the measure of making

the treatment of its less urgent forms, by the use of emetic and cathartic applications alone, the subject of careful and reiterated experiment. Sixteen cases conducted on this plan, without a single failure, may therefore authorize my suggesting the propriety of prosecuting the inquiry, and of entertaining a conviction of the method being adapted to produce beneficial effects, under like circumstances, in the hands of other practitioners. In eleven instances, the emetic was twice, and in five, thrice exhibited; in every one of them the convalescence was rapid and perfect. One sketch may serve for illustration.

D. G., a lad of sixteen, of full habit and healthy, experienced a general chilliness, and other feelings of discomfort, in the evening after travelling in a stage coach, the windows of which were occasionally let down during the journey. At the same time the atmosphere was moist and cloudy, while a cold wind blew from the north-east, and his right side was, in consequence, exposed to its action. At night he bathed his feet in warm water, had a 'warm drink,' and went to bed, complaining very much of sharp wandering pains in the throat, neck, and right side of the face, with increasing difficulty of deglutition, and a stinging deep-seated pain in the ear. Next morning early, he was roused from an unrefreshing slumber, by a severe paroxysm of ear-ache, accompanied with aggravation of all the precursory symptoms. For that day and the following, he was subjected to the discipline of a domestic treatment, composed chiefly of saline aperients, in defective doses, frictions of the throat, with ammoniated linament, and the insertion of laudanum on cotton into the affected ear. Such means, however, proving inefficient, the disease progressively advanced, and late in the third day came under my observation as a true otitis, distinguished by the certain signs, local and general, of inflammatory excitement.

On this occasion, slowness of the bowels, loaded tongue, heat and constriction of the skin, hoarseness, headache, with throbbing of the cephalic and cervical vessels, difficulty of swallowing, sense of cold all along the spine, excessive sensibility, and tumefaction of the right side of the face, eyelids, and neck, and an excruciating pain within the ear, which underwent intense exacerbations, with much disturbance of the respiratory and sanguiferous functions, afforded the grounds of a therapeutical indication.

Without loss of time, an active emetic, thirty grains of ipecacuanha, and three of the antimonial tartrate, was administered: its effects were powerful but not excessive; and the advantages derived from them were immediate and decisive. Before the last paroxysm of vomiting ceased, all the more urgent symptoms had nearly subsided; and the patient, on reclining himself to rest, soon fell into a tranquil sleep, during which a general and profuse perspiration supervened. Before midnight three

copious alvine dejections were obtained; and he passed the morning in a state of uninterrupted repose. Throughout the whole of this day a genial moisture universally bedewed his cutaneous surface: he remained closely in bed; and, without other food or medicine, took twice some beef-tea, with a small piece of bread. At bed-time, an opening medicine—a scruple of rhubarb, with one grain of ipecacuanha—was exhibited; and, in half the proportion, repeated next morning. By noon, this produced a large foetid dejection, after which the young man felt so free of uneasiness of every kind as to become importunate in his desires of leaving the bed. This design, being at last accomplished in the evening, led to a renewed attack of the disease, occasioned by his momentary exposure to a stream of cold air: his rest in consequence was disturbed; and early in the subsequent morning, many of his inflammatory symptoms had reappeared, and the ear-ache grown quite agonizing. For these, he took the emetic and purgatives, as before; and the same results ensued. In the end, confinement to bed, abstemious regimen, warm foot-baths, with mild diaphoretics and aperients, enabled him, in four days longer, to resume his ordinary occupations.

By the pathological histories which this detail exemplifies, we should be guided to the conclusion, that acute, even very acute and complicated otitis, may be subdued by the united influences of emetics and alvine evacuants, independently of blistering or venesection. In its milder, though still acute form, the disease will frequently yield to the unassisted powers of an emetic of ipecacuanha with antimony; which, besides inverting the stomach's natural action, communicates excitement to the skin, and the system of organs on which the varied pressures of alimentation depend. Observation of this practice, in fifty-three instances, has furnished me with inducements to regard it, notwithstanding its extreme simplicity, as convenient and generally successful; and, under this impression, to submit its merits to more extended and diversified trial. The notes of three cases, taken indiscriminately from the list, may represent the principles on which this statement is founded.

R. G. M., a fine lively boy, aged eleven years, had complained for a few days of a common cold, attended with stiffness of the neck and considerable enlargement of the submaxillary glands. Domestic remedies, however, had in a great measure removed his principal symptoms, when he employed his first escape from confinement in hastening to join his companions at a pool, on which the ice was softening, by the effects of an incipient thaw. At this place he spent upwards of two hours, in a variety of juvenile amusements, and returned to the family with his feet soaked in melted snow, and his whole person moistened with perspiration. He was instantly undressed, and sent fasting to bed, where he passed the evening without other

inconvenience than what arose from an increasing desire of food. Under these circumstances, he had an early but light supper, and went to sleep in the best spirits. Nevertheless, ere noon of the next day, he began to droop; and by evening had symptomatic fever, difficulty of swallowing, and pain over all the left side of the head, with frequent and violent fits of ear-ache. The usual popular antidotes were opposed to this state, but without advantage: and, late at night, his treatment was consigned to my direction. On being questioned, he confessed that he had been forcibly struck with a snow-ball on the affected side of the face, and that some time elapsed before the snowy particles were picked out of the ear, on account of their coldness. Altogether, an acute otitis seemed evidently to be making rapid progress. Immediately, therefore, an emetic, containing fifteen grains of ipecacuanha and one of the tartrate of antimony, was administered, and in due time determined the best results, by abolishing entirely the ear-ache and its concomitant febrile movements. On the disturbance thus induced subsiding, the patient was immersed in a warm bath, where he underwent friction of the spine, abdomen, chest, and neck: this was followed by a profound sleep and gentle perspiration. Early on the ensuing day, his bowels became active, the cutaneous functions free, the circulation equable, and his exemption from pain complete. The establishment of his convalescence was now decided: light cooling nourishment, exercise in his room, and a gradual exposure to the genial atmosphere, without medicine of any kind, restored him in a few days to the enjoyment of vigorous health.

Equally beneficial were the results of this treatment in the following instance:—A. D., a maid-servant, twenty-four years of age, and endowed with a sanguine temperament, had sustained the effects of cold and wet, after being heated at work, on the first day of her catamenial period. The progress of this, in consequence, was suspended, and the circumstance concealed from her mistress, who, notwithstanding, directed her to have a warm bath, aperient medicine, and a draught for inducing perspiration, as the means of removing a catarrh, complicated with an excruciating ear-ache. By these remedies the general symptoms were partially mitigated; but the local affection continued to augment till its intensity had occasioned a train of alarming hysterical agitations. On the third day from her seizure, this person came under my care, in a state distinguished by the usual manifestations; the nervous disturbance particularly was severe, and had much in it of a true convulsive nature. Without delay, she took an emetic (*R. pulv. ceph. ipec. ʒss. tart. antim. gr. iij.*; *M. rité, ut fiat pulvis more solito sumendus*;) and in due time a warm semi cupium, which was succeeded by free alvine evacuation, a general diaphoresis, and a long sleep. While rejecting a large quantity of bilious matter in the second

fit of vomiting, she perceived the ear-ache yield, and it ceased entirely before the drug's specific influences were exhausted. In this interval, the uterine emanation re-appeared, and uninterruptedly perfected its ordinary course; she had no return of her nervous disturbance; and, with the necessary precautions against cold, was freed in a few days from every trace of her complaints.

More than one practical hint may be deduced from the next history. Mrs. S., having a lymphatic constitution, the mother of three children, and on this occasion in the fifth month of pregnancy, had inadvertently placed herself in the range of a moist autumnal air, blowing through an imperfectly closed window. In the evening, she experienced a general chilliness, with returns of shivering, constriction of the skin, soreness of the parietal bones, and a distressing sensation in the teeth of her upper jaw on making a respiration. After bathing her feet in warm water, filling both ears with cotton, impregnated with a pungent oil, and covering the throat with flannel, she went early to bed, but soon became hot and restless; and towards midnight had an accession of acute lancinating ear-ache. This returned in frequent aggravated paroxysms, darting to the innermost structures of the head, and, in the end, induced nausea, with very fatiguing attacks of retching.

Finding, in the morning, her vital functions in a state of great disturbance, and observing the indication pointed out by nature, which I had adopted on other occasions; and even in this person's peculiar circumstances, I hesitated not to advise the immediate exhibition of an emetic,—thirty grains of ipecacuanha, and two of tartrate of antimony, with large dilutions of tepid water. It operated copiously, but without severity, excited the bowels and cutaneous vessels, rebalanced the circulation, and was in all respects salutary. A warm bath, abstinence for that day, a refreshing sleep, and moderate exercise in her room, in due time rendered her convalescence complete.

Otitis, even in the simplest state, is not unfrequently the cause of very acute distress to the sufferer; but on such occasions, like tooth-ache, it seldom excites any great degree of sympathy. For this reason, and from other sources of neglect, the disease is sometimes permitted, by want of suitable interference, to establish an ascendancy in the system, to which the best means of cure may be vainly opposed. On this account, therefore, there is a manifest propriety in subjecting it to treatment during its earliest and uncomplicated stage: and, from the evidence of these cases, the extensive and diversified influences of vomiting seem to be well calculated to determine the indicated results. These instances, it is true, afford exemplifications of ear-ache merely in its acute inflammatory form; but, in conjunction with other appropriate remedies,—venesection, contra-stimulants, epispastics, and alvine evacuation,—it furnishes a powerful resource for subduing the affection in its more aggravated

as well as protracted modifications. Such, indeed, are of less frequent occurrence, especially unaccompanied with lesion of the implicated organ; nevertheless, where the morbid action is still *nearly* simple, though chronic and inflammatory, the exhibition of emetics alone will often suspend its progress, frequently change its character, and sometimes restore all the disbalanced functions to their natural tenour. In my experience, the observation of thirteen cases, which it would extend the present article unduly to detail, goes to elucidate and confirm this doctrine; and a still greater number, having complications, authorizes my stating, that this means shall contribute, decidedly, towards augmenting the efficacy of a systematic treatment for mitigating, or entirely removing the disease.

Nervous ear-ache, as it has been denominated, has its character, when idiopathic, exceedingly aggravated by derangement of digestion; and, when symptomatic, as it more generally is, it derives its origin and intensity from the operation of substances, offending or disordering the alimentary system. It may be recognised by the usual signs of 'nervous irritation,' in connexion with that peculiarity which distinguishes the local pain. For this affection, therefore, which when protracted may attain a very injurious, as well as obstinate, ascendancy over the constitution, an emetic, assisted by the common topical applications, and repeated, according to circumstances, to the third or fourth time, almost universally has favourable results. When yawning, and squeamishness, and gastric flatulency, are superadded to the other symptoms, this remedy is certain.

Erysipelatous inflammation, as well as the true erysipelas itself, under both its local and erratic modifications, proceeds for the most part from the disorders of vital action, which have their origin in an imperfect or unnatural discharge, sometimes simple, sometimes complicated, of the digestive or cutaneous functions. In its first stages, the former is always accompanied, in a greater or less degree, with the febrile manifestations; and these, in being modified by the disease's peculiar nature, have a direct tendency to create inappetency, debility, and mental depression. Under such circumstances, the administration of ipecacuanha, with rhubarb and capsicum, in frequent and regulated doses, exerts a very beneficial impression on the skin and assimilative organs. When this salutary change has evidently been effected, a light, exhilarating, nutritive course, aided, when necessary, by suitable topical remedies, shall in general be found sufficient for the restoration of health. In many instances, however, a gentle emetic intercepts the malady: and, by consequence, should be held as the best means of accomplishing the preliminary objects of practice.

Gout has a constitutional source, associated with a tendency to assume a local determination. In its early attacks, and especially when the manifest symptoms are those of excitement, the paroxysm shall in many instances be intercepted by the

actions of an emetic, assisted by soothing the affected part with cold or with warm applications, and a determinate course of aperients, temperance, and rest. In almost all its forms, indeed, except under circumstances where the exhibition of such a remedy would necessarily be contra-indicated, the gouty accession will yield sooner to the appropriate treatment, if this has been preceded, or is succeeded, by the diffusive influences an emetic is capable of communicating to all the systems of the animal economy. At present, however, it is not proposed to investigate this question in detail.

Every attentive observer may be taught by his own experience to conclude, that justly qualified emetics possess a tendency to invigorate the assimilative organs. The confirmation of this maxim is drawn from the growing desire of food, the disposition to sleep, and the genial perspiration, which are often consecutive to their salutary operations. It is only when abused by ill-timed exhibition, excess of strength, improper ingredients, or a too free repetition, that they impair the excitability of the brain, the stomach, and the system. In some cases, as a preparatory measure, it may be necessary to unload, by sanguineous depletion, the overcharged vessels of the brain; in others, to moderate when exalted, by the same means, the tone of the nervous energy which is supplied by secretion from the blood; and in some, where the nervous activity is defective or oppressed, an acid draught, or affusion* of cold water on the head and person, shall render the system more susceptible of the influences which an emetic naturally produces.

By observation of their effects in numerous and greatly diversified instances, my own mind has, long since, been persuaded of the advantage of exhibiting such remedies in *full*, preferably to *inferior* doses; and, in my hands, a combination of antimony with ipecacuanha improves the peculiar efficacy of both medicines. A difference of opinion may be entertained, and indeed is usually retailed in dispensatories and pharmacological books, with regard to the propriety, or even the safety, of administering emetics to pregnant females. Of their safety, however, in ordinary circumstances, I entertain no doubt; and it is exemplified in one of the preceding sketches, taken from several others of the same kind. Reflections on the violent agitations which females occasionally undergo, without bad effects, even in advanced pregnancy, first of all induced me to investigate the principles on which the practice of treating them with emetics, as a remedy for disease, has been interdicted; and, by leading to a conviction of this proscription being founded on theoretical preconception, seemed to authorize a cautious trial, under urgent indications, of their powers. This proved most beneficial; and, on many subsequent occasions, the right admin-

* The reader will find this practice successfully adopted, by recurring to the REPOSITORY, Vol. XVIII. pp. 26.—29.

istration of an emetic* to a pregnant woman has secured the happiest results. Whoever, in fine, shall reflect philosophically on the acts of violent exertion, on the effects of irregularity, accidents, diseases, and their treatment, and on the means employed by execrable knaves for the sake of procuring abortion, which many females sustain without injury, must be led to the conclusion, that nature is too wise, and has been too provident of the well-being of her noblest offspring, to leave the important processes of utero-gestation susceptible of derangement or destruction by the effects which well-regulated emetics naturally determine.

SURGERY.

13. *Re-union of a Nose, which had been completely separated.*—The following abstract of an instance in point we take from one of the best German Journals of the day :—

An unfortunate tailor, by the name of Gruzlewski, seated himself in a window, one wing of which he had opened. A sudden and violent gust of wind shut it with considerable force, and a part of the glass which was broken carried off a great portion of the man's nose. The separated piece was about the length of a finger, and the whole breadth of the nose. It fell from the second story of the house into the street. The circumstance occurred about seven o'clock in the evening. A surgeon was immediately sent for, and he was satisfied with merely applying a plaster. Another surgeon, however, was consulted two hours after the accident. He sought for the nose with the candle in the street, and placed it in its natural situation. In a few days it had united, and regained its warmth and sensibility. The only mark of the accident which remains perceptible is a small, narrow, red scar.

It is observed, that the magistrates would testify the truth of this relation, if it were considered necessary.

A similar case is also recorded in the same Journal, in which complete union took place, where the nose had been entirely

* With reference to this statement it may be added, that pregnant women often sustain great evacuations, both by the lancet and purgative medicines, intense excitement from blistering, and other remedies employed for the treatment of febrile and inflammatory seizures, without incurring a tendency to abortion. I have, moreover, conducted the cure of females in this state, with fractures of the upper and lower extremities, and in one instance with fracture of the right thigh-bone, and at the same time of both bones in the left leg; in another case, a violent contusion on the lumbar spine was followed by a sphacelating ulcer, which yielded to the usual remedies; and, in both, the course of pregnancy had a favourable issue. By one of my friends in this city, also, a malignant tumour was removed by amputation from the right breast of a woman, in her fifth month; and, while her particular condition passed on undisturbed, the operation was in all respects fortunate.

separated.—*Journal der Chirurgie und Augen-Heilkunde*, von GRAFE UND WALTHER ; band 7, heft 4.

For much interesting information upon the subject of the reunion of divided parts, we refer our readers to a publication of WIESMANN, “*De Coalitu partium a reliquo Corpore prorsus disjunctarum.*”

14. *Necrosis*.—Dr. RICHTER, of Berlin, has lately published some long and interesting papers upon the subject of the various kinds of Necrosis. We abstract the following observations, which may not be uninteresting to our readers.

Necrosis syphilitica.—This species begins mostly in the substance of the bones, and extends lengthways. The pain (which may last for a considerable time) is of a boring, gnawing kind, and increases when the patient is warm in bed. At this time, indeed, it frequently is so severe, that he is obliged to rise. The swelling gradually increases, but does not acquire the size which is witnessed when the disease arises from other causes. The inflammatory process is slowly developed, never very acute, and does not extend beyond the part of the limb which has been previously swoln. The redness is of a pale rose-colour, very limited, well defined, and not gradually lost in the surrounding parts. The temperature of the part is not high. The pain arising from inflammation of the soft part is more superficial and lancinating, and may be distinguished, by intelligent patients, from the boring, gradual, and deeper-seated pain, which is characteristic of this form of necrosis. The swelling of the limb is but little increased when inflammation of the skin supervenes, and every symptom is increased when the patient is warm in bed. Some time elapses before an opening takes place in the skin ; and, before the small portion of skin is absorbed, it assumes a limited dark appearance. Subsequently, the skin in the neighbourhood of this opening is more destroyed than the cellular membrane beneath. When necrosis arises from other causes, the latter structure is most affected. Around the opening small superficial ulcerations form, which take on all the characters of chancres. The matter, which is from the commencement discharged from these openings in the skin, differs much from the qualities of healthy pus, particularly if the patient has been long affected with syphilis, and is of a cachectic habit of body.

Necrosis arthritica occurs only in advanced age. It arises either suddenly or gradually, and may show itself, at first, either upon the surface, or the periosteum, or the joints, of the bones themselves. Its course is rapid, if the subject is of a full plethoric habit of body. The paroxysm of gout is, probably, suddenly suppressed. In patients of a different constitution, it proceeds more slowly. The pain is acute, and seldom felt in the middle of the bones, but more superficially upon the periosteum, and affects the whole circumference of the limb equal-

ly. In this species, warmth is borne without any aggravation of the symptoms; but, towards midnight, there is generally an exacerbation, the severity of which passes off in the morning. Upon any approaching change of weather, the pain is much increased. The swelling quickly follows the pain, and soon becomes considerable, as the inflammation begins mostly in the soft parts, and subsequently extends to the bones. The inflammation sometimes takes place at the same time with the swelling, and extends to the same distance. The redness is darker than that observed in the preceding species, and less diffused; but still gradually vanishes towards the edges. The sensibility of the inflamed part is often so considerable, that the slightest covering cannot be borne. The fistulous openings are small, and the edges easily become callous. The fluid at first discharged is thin and watery, and excoriates the adjacent parts: it sometimes, under circumstances of a favourable nature, becomes of a better quality.

Necrosis scrofulosa takes place, in most cases, during the period of growth, in those subjects who are of a generally scrofulous habit. It arises and proceeds very gradually, and may last for years, affecting at the same time several bones. The pains, at the commencement, are moderate, and observe no regular course: they are not increased when the patient is warm in bed, nor by vicissitudes of weather. The swelling also takes place very slowly, but extends over the whole of the affected parts; perhaps occupies all the limb, the under part being œdematous. It becomes gradually larger, and is not tense and hard, but remains of a doughy feel. In this state it may remain, the pain continuing some time before inflammation supervenes. At last inflammation does take place, but does not rise to a high degree; the part appearing of a pale rose-colour, as in the syphilitic species: it is more diffused, however. When the disease is of long duration, and a great part of the bone is destroyed, the colour of the inflamed part becomes of a bluish cast, and darker. It is still distinguished by its asthenic character, by the swelling of the part, which remains doughy, and retains the impression of a finger. The fistulous openings possess the peculiarity of easily healing, and again breaking out; or the passage to the destroyed portion of bone is closed up by fungous growths, which shoot from the openings. The matter at first discharged has the colour and consistence of good pus, but is often mixt with shreds resembling the coagulated white of an egg. The pains frequently abate entirely after the swelling has broken.

Necrosis scorbutica.—Besides the general symptoms of weakness and broken health, those which refer to the state of the bone are marked by the following peculiarities:—This species frequently supervenes upon other diseases of the bones; and, long before any destruction of the bone occurs, pain and other symptoms take place. The swelling is violent, and becomes

œdematous, and is not for some time accompanied by inflammation; which at last, however, occurs very rapidly. The blush of colour is dark, bluish, and gradually lost in the surrounding parts. The sensibility of the parts, and the temperature, are not so highly increased as in the nervous inflammation. The fistulous openings form rapidly, become large, and approach each other. The sinuses are thin and flaccid, and are disposed to mortify. The matter poured out when the swelling bursts is thin, watery, brown in colour, and mingled with blood: it at last, perhaps, assumes a more favourable appearance. At the edges of the openings, light bleeding fungi form, which increase in size, and obstruct the exit of the contained matter. The contiguous veins are much increased in size.

Necrosis mercurialis resembles very nearly the scorbutic species. It runs a tedious and unfavourable course. The general symptoms of the mercurial poison give the clearest indication of the nature of the malady.

Necrosis metastatica.—The soft parts surrounding the bones are usually first attacked in this species. The affection of the bones is secondary and sympathetic. The symptoms resulting from a metastatic affection, whether the hard or soft parts are affected, are sudden in occurrence, and rapid in their progress. Pain precedes the other symptoms but a short time: almost along with it arise swelling, inflammation, and abscesses; so that in a few days, or perhaps in a few hours, a portion of destroyed bone may be detected with a probe. The pain occurs suddenly, is very violent, darting, and constant. The swelling is considerable; increases rapidly when the soft parts are primarily affected, and more slowly when the substance of the bones is the seat of the evil. The metastatic inflammation is always limited, violent, and very painful. The redness of a deep tint; the temperature high. The abscess forms, and ruptures speedily. When the muscles and cellular membrane are at first attacked, one opening only is usually formed, and not several at distant points; which occurs more frequently during the development of the disease in the bony structure. The pus discharged is of a bad quality, brown, bloody, of a blackish colour, and thin.

Necrosis a causa mechanica.—The cause of this species depends upon the degree of violence inflicted. The progress is generally rapid. The symptoms are violent; and therefore correspond, to a certain degree, with those above described. The nature of the inflammation, and the result of the case, depend almost entirely upon the constitution of the patient.—*Journal für Chirurgie, &c.* von GRAFFE and WALTHER.

We may, in a subsequent number, abstract a few more observations from the excellent papers of RICHTER, upon the subject of necrosis. A continuation of them is promised; and we shall, of course, submit to our readers the treatment proposed by this eminent surgeon in this formidable disease.

15. M. JANSON'S *Case of removing a large portion of the Scapula.**—A female, employed in the manufactory of silk, aged 43, began in 1819 to perceive a tumour in the posterior and middle portion of her shoulder-blade: it was immoveable, painful to the touch, and appeared fixed to the bone. In 1824, this tumour had acquired the size of a child's head, was hard, wrinkled, and had occupied all the bone, excepting its inferior border and the supra spinal fossa, and had extended itself to the highest part of the axilla, with an elongated and voluminous pedicle. It was moveable in all directions, and carried the arm with it in all the motions given to it. The portion of this swelling which was situated in the axilla, obliged the patient constantly to keep his arm elevated, and at a right angle with the trunk of the body. Violent pains, darting from the shoulder along the arm, were felt in the breast. At length, from want of sleep and indigestion, the patient had become emaciated, and was evidently sinking.

On the 4th of October, M. Janson attempted the removal of the tumour. He included it within two semi-elliptical incisions: dissected the edges of the wound, so as to preserve as much skin as possible, and detached the tumour in every direction; then raising it, and the tumour breaking in the centre throughout its whole thickness, he removed the greatest part; cutting the attachment of the trapezius, of the supra and infra spinatus muscles, he discovered that all that portion of the scapula situated above its spine was in a healthy condition; and separating by the saw the diseased part of the bone, he thus preserved the articulation of the arm. Finally, laying bare that portion of the tumour situated in the axilla, by an oblique incision from below upwards, he dissected it, and drew it upwards carefully; the cellular tissue which fixed it to the arm gave way, and he succeeded in removing it entirely. All the vessels were then tied: the axilla properly supported by a plug; and the edges of the wound, which was six inches across and nine in length, were brought together with sticking-plaster.

For a few days the success of the operation was doubtful, from causes affecting the general health; but these were calmed, and the patient quitted the hospital at the end of two months, nearly cured.—On the 15th of March it was entirely healed, and the motions of the limb were becoming daily more free.

MATERIA MEDICA.

16. *On a new Preparation of Croton Tiglium.* By JOHN POPE, Esq.—Mr. Pope supposes that the nausea and griping so often attendant on the use of this article, depends upon the oil being

* Archives Generales.

expressed from the medulla of the seed, without previously stripping off its epidermis and husk. He recommends the use of the alcoholic tincture, which is made by digesting two ounces of the pure medulla of the croton tiglium in twelve ounces of alcohol (sp. grav. 836°) for six days. The dose of the filtered tincture for an adult is about twenty minims. No experiments have as yet satisfactorily proved the effects of the husk and epidermis used by themselves. Mr. Pope has known the croton tiglium evacuate the bowels after every other medicine had failed; a fact which, from our own experience, we can corroborate.

17. *Cupping Glasses to Poisoned Wounds.*—Dr. BARRY, an English physician, read a paper to the Royal Academy of Medicine, relative to some experiments made by him, tending to prove that cupping glasses applied to a poisoned wound prevents the absorption of the venomous matter. The experiments were as follow:—Wounds were made upon the back and thighs of full-grown rabbits, and, when the blood had ceased to flow, two or three grains of strychnia in powder, or two or three drops of hydrocyanic acid, were introduced into the wounds; then, after intervals of three, five, and ten minutes, a cupping glass was applied to the wound, which was renewed as often as it fell off; no symptoms of poisoning occurred in these animals: but if, on the contrary, this precaution was not taken, they all died. On one occasion, Dr. Barry waited until the animal became affected with convulsions, nevertheless, he succeeded in saving it by these experiments. Dr. Barry, who believes that the circulation of blood in the veins takes place in consequence of an action exercised upon that fluid by the thorax during inspiration, concludes that any circumstance capable of changing the force of this action from the circumference to the centre in an inverse ratio,—that is, from the centre to the circumference, as is done by the cupping glass, will not only prevent absorption, but will also bring back to the surface the matter already absorbed,—as long, at least, as it remains within the influence of this action. (*Archives Generales*, Sept.)

At a subsequent meeting, M. ADELON read a report of M. LAENNEC upon the experiments of Dr. BARRY, the results of which have been verified:—a cupping glass having been applied upon a wound into which some strychnia in powder had been placed, prevented the effects of this substance from manifesting themselves, and also suspended them when beginning to be apparent, and consequently appear to have prevented the absorption of the poison. The experiments of Dr. Barry have not only been confirmed by repetition, but others have been performed with the white oxyde of arsenic, hydrocyanic acid, and the upas tieuté.

1. Eight grains of white arsenic were introduced into a wound made in the thigh of a dog, three quarters of an hour after a cupping glass was applied to the wound, and kept on for four hours,

and the animal suffered no inconvenience. Another dog under the same circumstances, where the cupping glass was not applied, died at the end of fifteen hours.

2. Six drops of hydrocyanic acid were poured into a little wound made in the thigh of a rabbit, the cupping glass was applied for twelve minutes, and the animal showed no signs of having been poisoned; but when it was taken away convulsions came on so suddenly that it was thought to be dead, but a fresh application of the cupping glass restored it to its former state of tranquillity; the same effects ensued upon removing it again, and it was only after half an hour after the introduction of the poison that it could be removed with impunity. Another rabbit, treated with the same quantity of acid, where no cupping glass was used, died in two minutes. The results of trials made with a grain of the Upas Tienté were in all respects similar. Dr. Barry concludes that the cessation of the symptoms of poisoning from the application of the cupping glasses, arising in consequence of that portion of the poison which has been absorbed being recalled to the wound and taken out of the circulation,—a position which is combated by M. Segalas, who believes that the cupping glass only acts by preventing the absorption of any new quantity of the poison, and that the portion which has penetrated ceases to act because it is rejected by the different excretions. (*Archives Generales*, Octobre.)

18. *Effects of Iodine*.—M. LOCHER-BALBER has published several cases, in which the good effects of the above medicine were demonstrated. The first case is that of a woman, twenty-five years of age, who, otherwise of a good constitution, was subject at each period of menstruation to violent headaches, so as to be obliged to keep her bed; sometimes violent pains in the teeth, or bowels, occurred instead of headach. After taking half an ounce of the tincture of iodine, (the dose is not mentioned,) she was freed of all her ailments, and the menses have subsequently been quite regular, and not preceded by any painful affection. The second and third cases are so far similar, inasmuch as they relate to symptoms dependent upon menstruation, and they equally yielded to the tincture of iodine. Three other cases are recorded of enlarged lymphatic glands, in one the external and internal use of iodine produced no effect on the disease, in the other two cases a cure was effected. M. Locher-Balber finally relates the following case:—A child, six years of age, affected with tinea for a long time, had enlarged glands of the neck, the least of which were as large as a nut. Five drops of tincture of iodine were given three times a-day, the swelling of the glands diminished considerably, and the tinea was radically cured. The medicine was obliged to be withheld sometimes, because it occasioned, after a certain period, a feeling of great heat in the stomach: the patient was removed from the author's

care, and therefore he does not know the termination of the case. Other cases relate to the ill effects of the tincture of iodine; and in one instance a general emaciation ensued, and the remedy was abandoned.

At the first public Commencement of the JEFFERSON MEDICAL COLLEGE, held in the Masonic Hall, Philadelphia, on the 14th of April, 1826, the degree of Doctor of Medicine was conferred on the following gentlemen, to whose names are attached the subjects of their Theses and the places of their residence.

George Baldwin,	<i>Cholera Infantum,</i>	Pennsylvania.
Peter Q. Beekman,	<i>Syphilis,</i>	New Jersey.
John Bowen Brinton,	<i>Cholera,</i>	Pennsylvania.
George Carll,	<i>Anthrax,</i>	do.
Benjamin B. Coit,	<i>Tetanus,</i>	Connecticut.
Thomas M. Dick,	<i>Epidemics,</i>	S. Carolina.
Joel Foster,	<i>Neuroses,</i>	Vermont.
Charles Graeff,	<i>Rheumatism,</i>	Pennsylvania.
John Graham,	<i>Epilepsy,</i>	Ireland.
Charles M. Griffiths,	<i>Cholera Infantum,</i>	Pennsylvania.
Jesse W. Griffiths,	<i>Intermittent Fever,</i>	do.
Ralph Glover,	<i>Hernia,</i>	New Jersey.
Nathan L. Hatfield,	<i>Dysentery,</i>	Pennsylvania.
William Johnson,	<i>ExtraUterine Pregnancy,</i>	do.
M. L. Knapp,	<i>Apocynum Cannabinum,</i>	New York.
Thomas B. Maxwell,	<i>Lobelia Inflata,</i>	Pennsylvania.
Atkinson Pelham,	<i>Mania a Potu,</i>	Kentucky.
Benjamin Shaw,	<i>Medical Practice,</i>	Pennsylvania.
J. Frederick Stadiger,	<i>Epilepsy,</i>	do.
James Swan,	<i>Scrofula,</i>	Massachusetts.

B. RUSH RHEES, *Dean.*

THE
AMERICAN
MEDICAL REVIEW
AND
JOURNAL.

VOL. III.

AUGUST, 1826.

No. II.

ART. I.—*The Anatomy of the Fœtal Brain, with a comparative exposition of its structure in Animals.* By FREDERIC TIEDEMANN, Prof. in the University of Heidelberg, Member of the Academy of Sciences of Munich and Berlin, &c. &c. Translated from the French of A. I. L. Jourdan. By WILLIAM BENNET, M. D. To which are added, some late Observations on the influence of the Sanguineous System over the development of the Nervous System in general. Edinburg, 1825.

“AFTER having described (says the author) the configuration of the brain and spinal marrow, during the different periods of gestation, I now proceed to trace, with the assistance of general data, the history of the formation of each of the parts, the union of which constitutes the encephalic mass.”

From the observations contained in our preceding number, it is obvious that the brain of the fœtus is an organ comparatively simple, and that it is rendered complex by the addition of its several parts, at successive periods. It is an important object of our author's inquiry to determine whether in this it obeys the general law of formation of the brain in the animal kingdom, and for this purpose he compares, in the following pages, the fœtal brain of different periods with the same organ in different grades of animals. It is obvious that im-

portant results in relation to the functions of the several parts of the brain, are connected with this inquiry.

It will be recollected that at the end of the first month the spinal marrow is merely a membranous canal, containing a fluid which at the end of the second month becomes like the white of an egg, and the transparency of which gradually diminishes. Its walls are formed by the dura mater, not yet fibrous, and by the vascular pia mater which dips into the longitudinal groove, and the canal of the organ. Fibres were first seen about the fourth month. The connexion of the canal of the s. m. with the fourth ventricle, will be recollected, as also the comparative capacity of the canal at different periods.

The author observes, that the canal of the spinal marrow, which thus exists only in the fœtal state of the human species, is always present during the entire life of the animal, in fishes, reptiles and birds. The canal also exists in the spinal marrow of the fœtus of mammiferous animals, as also in the young animals of this class.

The author observes, also, that the same canal has been found in the human adult, but attributes its existence to a retardation in the development of the organ.

Our author is of opinion that the anatomy of the fœtus is by no means favourable to the hypothesis of Gall, who supposes that the spinal marrow of man and inferior animals is composed of ganglia or enlargements of gray substance distinct, but adherent one to the other, and corresponding in number to the nerves which it furnishes. On early examination nothing similar to these enlargements or ganglia can be found. It is true, however, that the greatest number of nerves emanate from where the cortical substance is most abundant, but this latter substance is of secondary formation.

Although our author does not admit that the nerves are generated and supported by this cortical substance, yet he admits that the latter is subservient and necessary to their vigorous action by virtue of the arterial blood which it conveys,

and hence that there is an intimate relation between the volume of the spinal nerves and the enlargement of the spinal marrow.

In many other respects the spinal marrow of the fœtus resembles that of the lower animals. During the first months the former has no caudiform expansion, but fills the whole length of the spinal column, until the end of the fourth month. The spinal marrow extends through the whole length of the vertebral canal in reptiles and birds, and forms neither tubercles nor caudiform expansion, while the nerves which emanate from it come out directly by the foramina, pierced in the sides of the vertebral column. The spinal marrow of mammiferous animals descends much lower down in the canal than that of the human adult.

It is remarkable that as the spinal marrow in animals is larger in proportion to the brain than in man, so also is the spinal marrow of the fœtus larger than that of the adult, as the embryo is younger. In the fœtus, the pons varolii does not appear till the fourth month. Fishes, reptiles and birds, are, during life, destitute of this eminence.

In the fœtus the two pyramidal fasciculi, situated on either side of the anterior longitudinal groove, form, until the third month, a broad and plane surface.

The corpora olivaria are wanting in reptiles, fishes and birds, nor do they appear in the fœtus till the end of the sixth month.

The author here considers the question, whether the spinal marrow be a production of the brain, or the brain be produced by the superior part of the spinal marrow. The facts advanced by our author in the preceding pages, in relation to the successive development of the several parts of the nervous system, leave little room to doubt the truth of the latter and the correctness of Gall in this particular, although Tiedemann allows him only the credit of having revived an old opinion and of successfully controverting a prevailing error.

Arguments supporting the same opinion are drawn from

comparative anatomy, for we find the brain acquiring a greater volume and development according as we ascend the scale from fishes to mammiferous animals, a progress absolutely similar to what it follows, when formed in the head of the human foetus.

The author next compares the cerebellum of the foetus with the same organ in the lower animals. On recurring to the preceding pages, it will be seen that the cerebellum proceeds from the two restiform fasciculi. These are first perceived at the end of the second month, and are obvious on the third. The ulterior development and formation of the cerebellum are owing to new cerebral substance secreted by the vessels which the pia mater sends into its interior, and which surrounds it on all sides. The permanent development of the cerebellum in osseous fishes, in many of the cartilaginous, and in the greater part of reptiles, corresponds to that of the foetus of the third month.

In many varieties of these animals the organ is composed, as in the foetus, of fasciculi, rising from the spinal marrow and uniting over the fourth ventricle. The pons varolii and the valve of Tarin are also wanting, and the organ is not susceptible of a division into hemispheres and a vermiform process. In birds the cerebellum is more complicated, for from the point where the two fasciculi unite over the fourth ventricle, the medullary substance divides into many branches, which are generally subdivided into two stems or leaflets.

The cerebellum of mammiferous animals presents a more perfect development than that of birds, reptiles, or fishes. Indeed, as we ascend the scale of being the same gradation of organization appears as in different periods of foetal existence. "Reil," says our author, "has made a very just remark, that the number of stems in the cerebellum and of their divisions or subdivisions increases in proportion to the progress of animal organization towards complete perfection." We may add to these different particulars the observations of Malacarne on the intimate relation between the number of

leaflets of the cerebellum and the energy or extent of the intellectual faculties of the individual in the human species. This physician has found them less numerous in idiots and fatuous persons than in many who were distinguished by the force and brilliancy of their minds.

The volume of the two ciliary bodies correspond exactly in mammiferous animals to the bulk of the lateral parts of the cerebellum. They are very small in those animals where the hemispheres are but little developed, and they augment in the same proportion as these latter become more considerable; in the human foetus also they undergo the same progressive formation.

The pons varolii exists in all mammiferous animals. The volume and thickness of this protuberance, examined successively in the different species, are in a direct proportion to the development of the hemispheres and the ciliary bodies. In the foetus, as in reptiles, &c. the pons is absent, till the fourth month; afterwards it gradually augments according as the ciliary bodies increase, as in the mammalia.

In the foetus the fourth ventricle is merely a continuation and enlargement of the canal of the spinal marrow. The pia mater introduced into this cavity forms a choroid plexus, which lines it and directs the blood to the inferior surface of the cerebellum. The gray bands of Wenzell, which give origin to the auditory nerve, appear on the fourth or fifth month.

The fourth ventricle exists always in fishes, reptiles, birds and mammiferous animals. In fishes it always communicates with the canal of the medulla, as in the foetus. It is also continuous with the third ventricle in all these animals. In the mammiferous animals and birds the gray bands also were seen.

The author next notices comparatively the tubercula quadrigemina. It will be recollected, that in the second month of the foetus these bodies consisted of merely two plates, inclining upwards and inwards. They are not united till the fourth month, when they form a bridge over the aqueduct of

Sylvius. At the end of the fourth month the hemispheres of the cerebrum begin to extend over them. We can discern, at the same time, the fibres which proceed from the spinal marrow and come from the olivary fasciculi. On the fifth month the tubercula are almost entirely concealed by the hemispheres of the brain, and on the sixth completely. Beneath the fibres which come from the olivary fasciculi, lie the superior crura cerebelli, of a fibrous texture. The nates and testes are seen on the seventh. The passage between the tubercula is almost obliterated.

The tubercula quadrigemina exist in the brain of all mammiferous animals, and are of the same structure as in man. In them, also, as was observed in the fœtus, the optic nerves arise from the tubercula. In many animals the tubercula are entirely covered by the cerebrum, but in others only partially. The volume of the tubercula is more considerable in proportion to that of the brain, as the latter possesses a more simple structure. The same is true of the brain of the fœtus. In birds the tubercula, which have been mistaken for the thalami nervorum opticorum, exist in the form of large, smooth, oval eminences, separated above by a longitudinal depression.

In all the animals of the class of reptiles dissected by the author, there is found in front of the cerebellum, as in birds, two rounded protuberances, oval and smooth, which have been called the optic chambers because they give origin to the optic nerves. These, in the opinion of our author, are the tubercula, and this he infers from the fact that he could discern fibres rising from the lateral parts of the cords, formed by the prolongation of the spinal marrow forwards, and spreading into the hollow walls of the eminences in question.

Many writers have taught that fishes are destitute of these tubercles. In front of the cerebellum are two smooth protuberances, round or oval, varying according to the species, and parted by a longitudinal depression. These, by some have been mistaken for the hemispheres, and by others for the

thalami; a few have thought them to be the tubercula, and this opinion our author adopts. They arise from the lateral parts of the cords, which are continued from the spinal marrow forwards and downwards, and expanding into a sort of membrane, are reflected inwards to give origin to two cavities which communicate with the anterior prolongation of the fourth ventricle; their borders, reflected inwards as in reptiles, are in opposition without uniting.

Our author next compares the optic chambers. These in the fœtus it will be recollected, are seen on the second month immediately in front of the tubercula, completely exposed, being mere enlargements of the peduncles of the brain. At the end of the third month the membranous hemisphere are extended over them. The reader will recollect what has been said with regard to their progressive development, and the passage through them of the fibres of the spinal marrow to the peduncles of the cerebrum, and finally to the periphery of the hemispheres. The pedicles of the pineal gland and some of the fibres of the nervi optici arise from them. Lastly, from the optic chamber arises a small cord which descends into the mammillary eminences, and reflected in their interior from below upwards, forms the commencement of the anterior pillar of the fornix.

It will be recollected that the pineal gland was not discerned in the fœtus till the fourth month. Fishes are destitute of this organ; reptiles, however, possess it, situated immediately behind the hemispheres of the brain, where it appears in the form of a small, round, soft body. It is also found in birds, situated behind the hemispheres of the brain immediately under the pia mater. Its pedicles proceed from the surface and internal border of the enlargements of the crura cerebri. The author never discovered any concretions either in the pineal gland of the fœtus nor that of reptiles nor fishes.

The gland is found in mammiferous animals, varying in figure, size and structure. In all, its medullary pedicles arise

from the superior surface of the optic chambers, and even a little from the nates; they are united together by a mass of reddish gray substance which constitutes the gland itself, and which in the hind and sheep is hollow. Gall regards this gland as a ganglion giving origin to nerves; our author, however, rather considers it to be a commissure of the two optic chambers, increased by a deposition of gray vascular substance.

The development of the corpora striata in the foetus has been particularly described. The rudiments of them are first seen on the second month, and their development is not complete till the time of birth. These bodies do not properly exist in fishes; they are found, however, in reptiles. They exist in the form of oblong, smooth protuberances, partly covered by the choroid plexus. They lie anterior to and on the side of the enlargements of the cerebral peduncles. They are composed of an unfibrous substance of a reddish white colour, into which pass from above downwards, the blood-vessels coming from the choroid plexus. This substance rests on the fibres of the crus cerebri at their exit from the enlargement, that is to say, at the point where they turn outwards to constitute the thin round membranous wall of the hemisphere. Protuberances analogous to the corpora striata are very prominent in birds, constituting the greatest part of the hemispheres of the brain. They also exist in the brain of mammiferous animals. In many animals they form the greater part of the hemispheres of the brain, and in others they are very small. In reptiles, birds and mammiferous animals, the crura cerebri, after having quitted the optic chambers, pass into the corpora striata, where their mass is considerably increased by a mixture of gray substance.

It will be recollected that the anterior commissure is not perceived in the foetus till the third month, consisting of a cord of medullary fibres closely connected together, and increased by the pia mater. This cord is formed of fibres of the crura cerebri, which diverge from the corpora striata and

are reflected from the middle lobes of the brain. It is to be regarded as the commissure of the corpora striata.

Our author combats the opinion of Gall that this cord is formed of converging fibres which arise from the cortical periphery, for he says that the cord is ascertained to exist before the hemispheres are at all organized.

In fishes the two protuberances from which the olfactory nerves arise are united by a white and medullary commissure. It exists in all reptiles and birds. It is also met with in mammiferous animals. It is observed that such of the mammiferous animals as possess the olfactory nerves, well developed, have the anterior commissure uniting the enlargements of these nerves.

The author next compares the anterior parts of the hemispheres of the brain. In the foetus the rudiment of the hemispheres is seen in the second month, but their complete development occupies a long time, and is not completed till near the termination of foetal existence. It is from their comparative deficiency in the early months that the parts which they subsequently cover are so conspicuous, as the commissures, the thalami, the tubercula, &c. For a long time the hemispheres are mere sacs without convolutions, and filled with a large choroid plexus.

The author observes that precisely the same manner of formation occurs in the brain of animals, except that they are arrested in the different species, in different degrees of development, which those of the foetus pass through in their successive evolution.

In many fishes are found, anterior to the protuberances from whence the optic nerves arise, and which correspond consequently to the tubercula quadrigemina, two full, massive eminences which give origin to the olfactory nerves. Haller termed them the superior tubercles of the olfactory nerves. They are in general smooth, sometimes covered with slight depressions and prominences, resembling small convolutions.

The volume of these protuberances varies according to the species.

The hemispheres exist in all reptiles examined by the author. They have been improperly denominated the ganglia of the olfactory nerve. They are voluminous, smooth masses, situated anterior to the bodies which are analogous to the tubercula. Each hemisphere represents a membranous sac. The thin medullary membrane rising from the anterior and lateral parts of the corpora striata is reflected backwards and inwards, and thus constitutes the wall of the ventricle. In this state the hemispheres of the brain of reptiles resemble evidently those of the fœtus of the third month, which present the same inflection, and the same extent posteriorly, covering the corpora striata and the optic chambers; leaving, however, the tubercula quadrigemina exposed, a peculiarity also observed in reptiles.

The hemispheres of the brain of birds are much more voluminous, more elevated, and more convex than those of reptiles. However, they do not cover the masses analogous to the tubercula quadrigemina, for we observe them still exposed as in the fœtus of the first periods of gestation.

The brain of mammiferous animals gradually approaches that of man in passing through various degrees of organization, which establish some resemblance between it and the brain of the fœtus; but the latter passes with rapidity through the degrees of its development. In some of the mammalia, however, the hemispheres have neither grooves nor convolutions, but are smooth and flattened; nor are the tubercula covered in all.

In the ape the cerebrum is large and convex, and covers even the cerebellum. As in the fœtus there are anterior, middle, and posterior lobes, and the convolutions are more obvious and numerous. With two or three exceptions however, animals of this class have no convolutions on the posterior lobes. "All these facts," says the author, "establish that

the hemispheres in the foetus, as well as in animals, are developed laterally, and from before, backwards." Thus the brain of the adult is distinguished from that of animals by the volume and depth of the hemispheres, as also by the greater number of anfractuosities and convolutions.

The author next notices the crura cerebri and their expansion in the hemispheres.

In the foetus of the third month, the continuity of the middle fasciculi of the spinal marrow with the crura cerebri, is perfectly evident, because the pons varolii is not yet in existence. The crura are seen to pass through the optic chambers, and the striata to the hemispheres, where they are converted into a membrane which is reflected backwards and inwards, and which constitutes the hemispheres of that period.

The progress of the crura cerebri to complete development has already been particularly described. It is not completed till the ninth month.

The expansion of the crura cerebri in the hemispheres is effected in the same manner in reptiles, birds, and mammiferous animals, as in the human foetus. In reptiles and birds the fibres of the two cords proceed forwards, penetrate the protuberances analogous to the optic chambers of man, as also the corpora striata, and passing outwards and upwards, expand into the thin membranous plates, which represent the hemispheres of the brain, covering both the tubercles and the lateral ventricles. The crura cerebri of mammiferous animals are distributed precisely in the same manner.

Thus the hemispheres of the brain, which are primarily membranous, both during the first periods of uterine life in the foetus, and in inferior animals, appear after the formation of the spinal marrow, crura cerebri, and their vascular enlargements, the optic chambers and corpora striata; thus clearly proving that they are the product of an expansion of the pyramidal fasciculi of the spinal marrow.

The observations of the author refute all that Gall has said on his supposed system of re-entrant fibres, and also his

opinion that the convolutions of the brain are the result of the folding of the original membranous hemispheres. The process which he has employed to demonstrate this folding, and by this means reduce the hemispheres to the condition of a membrane, always produces the rupture of the internal layers of fibres of the crura cerebri.

The author next speaks of the corpus callosum, the development of which in the progress of foetal growth has already been particularly described.

It does not appear till the end of the third month, in the form of a small narrow commissure, and is formed from before, backwards. It results from the union of the fibres of the crura cerebri, after their expansion to form the hemispheres. The re-entrant fibres by which Gall explains its formation are merely imaginary. Reil is equally in error when he relates that this great commissure is composed of a distinct assemblage of fibres, for it is obvious that they are but a prolongation of those of the crura.

Fishes, reptiles, and birds, are destitute of the corpus callosum, as are very young foetuses. It exists, however, in mammiferous animals. In many, the radiation of the medullary fibres in the hemispheres, and their inflection inwards to unite and form the corpus callosum, are exceedingly evident.

The author remarks that the brain of man is subject to an imperfect development of the corpus callosum, and is liable to be arrested in one of the degrees of evolution through which it passes in the successive series.

It will be recollected that the lateral ventricles were described as being formed by the membranous walls of the hemispheres. Their gradual development has been described. On the eighth and ninth months they resemble perfectly in their configuration those of the adult.

To the different temporary states of the ventricles in the human embryo correspond permanent ones in the different animals. They are not found at all in certain fishes, but are

present in others. In reptiles and birds they are very capacious, but have no cornua. They exist in the brain of mammiferous animals, and have both the anterior and descending cornua.

The lateral ventricles are therefore formed at a later period than the canal of the spinal marrow, and then, in the human foetus, the third and fourth ventricles as also in animals.

The lateral ventricles are destined, as all those of the brain, and as the canal of the spinal marrow, to present to the pia mater a more extensive surface for the expansion of blood-vessels, and for furnishing a serous exhalation.

The corpora mammillaria, it will be recollected, do not appear till the end of the third month. They are not found in reptiles, but are seen in birds, and also in mammiferous animals.

The fornix and septum lucidum, are not discovered in the foetal brain till the end of the third month. The fornix is gradually formed from below, upwards; the anterior pillars, arising from the fibrous fasciculi which proceed from the optic chambers, descend into the corpora mammillaria, and are there reflected upon themselves. The septum lucidum, is formed of medullary plates proceeding from the pillars of the fornix to the inferior surface of the corpus callosum. Neither of these organs exist in fishes, reptiles, or birds. In mammiferous animals, however, we always meet the fornix, septum lucidum and its ventricle. The fornix presents no difference in all these animals with regard to the manner of its formation; it is always a medullary fasciculus descending from the optic chambers into the mammillaria, and reflected there passes up behind the anterior commissure; Gall, therefore, is mistaken in regard to this organ also.

The cornu ammonis does not exist till the fourth month of the foetus. The manner in which it is produced has been described. As it is one of the latest parts developed in the brain of the foetus, we find it appearing very late in the series of animals, for it is only in the mammiferous class that we

commence to observe it. It is more developed in proportion to the mass of the brain in mammiferous animals than in man. It is formed by a fold of the hemispheres of the brain, proceeding inwards, and this fold is united to the posterior pillar of the fornix, constituting the corpus fimbriatum.

The unciform eminence or hippocampus minor, is formed of a fold of the membranous hemisphere. This portion of the brain exists in no animal, because they are destitute of the posterior lobes of the brain.

The pituitary gland exists in fishes, reptiles, birds, and mammiferous animals. In fishes it is very large. In reptiles, and birds, it represents a hollow pyramidal eminence. In the mammalia it is larger in proportion to the size of the brain than in man.

ART. II.—*An Inquiry into the Nature and Treatment of Diabetes, Calculus, and other Affections of the Urinary Organs, &c. &c.* By WILLIAM PROUT, M. D. F. R. S. With Notes and Additions. By S. COLHOUN, M. D. Member of the American Philosophical Society, &c. Philadelphia. By Towar and Hogan. 1826. 8vo. pp. 308.

IN order to exhibit more strikingly the natural condition of the urine, and the morbid changes to which it is liable, Dr. Prout, in the first place, enters into the consideration of the various principles which enter into the composition of this secretion, with a particular "reference to those entering into the composition of the blood from which it is formed." According to the most accurate observations on this point, it appears that these two fluids, in their healthy state, are composed of the following principles, which the author has thus contrasted in the annexed tabular view :

BLOOD contains,	<i>Healthy,</i>
Water.	Water.
Albumen, fibrin, red particles.	—
—	Urea.
—	Lithic acid.
Lactic acid, and its accompany- ing animal matters.	Lactic acid, and its accompany- ing animal matters.
Sulphur. Phosphorus. Muriatic acid. Fluorine ?	Sulphuric acid. Phosphoric acid. Muriatic acid. Fluoric acid ?
—	—
Potash. Soda. Lime. Magne- sia. Silix ?	Potash. Soda. Ammonia. Lime. Magnesia. Silix ?
—	Mucus of the bladder.

The watery part of the urine may be so inordinately increased or diminished as to become in itself a source of disease. When the watery portion is excessive the urine is generally limpid and colourless,—is of a low specific gravity, and is voided in unusually copious quantities.

The *albumen, fibrin, and red particles* of the blood are never present in *healthy* urine. In some diseases, however, and particularly in some varieties of dropsy, not only serum, but even fibrin and the red particles of the blood pass through the kidneys unchanged, and manifest themselves in the urine. Albuminous urine becomes opaque and deposits flakes of this substance on being exposed to a temperature of about 105°. Our author thinks that the albumen is sometimes derived from the blood, and at others from imperfectly assimilated chyle. When the precipitate which is formed by exposing albuminous urine to heat, is of a firm character and resembles that formed by the serum of the blood, he thinks that it is derived from this fluid; when on the contrary it is “very delicate and fragile in its texture, and somewhat resembles curd, it may,” he says, “be supposed to be of chylous origin.” The most delicate test for albuminous matter is dilute acetic acid; the prussiate of potash also is an excellent test.

Urea is a substance peculiar to urine. In its separate and pure state it assumes the form of a four sided prism; and is both transparent and colourless. When placed on the tongue

it leaves a sensation of coldness like nitre ; it is neither acid nor alkaline. It does not diliquesce in dry air, but when exposed to a strong heat it melts and partly decomposes and partly sublimes. Its specific gravity is about 1.350.

The mode which our author uses for detecting an excess of urea, is to put a small portion of the urine into a watch-glass and adding to it slowly nearly an equal quantity of pure nitric acid, "in such a manner that the acid shall subside to the lower part of the glass, and allow the urine to float above it. If spontaneous crystallization takes place an excess of urea is indicated ; and the degree of excess can be inferred, near enough for practical purposes, by the greater or less time which elapses before crystallization takes place, which time may vary from a few minutes to two or three hours." The author observes that he knows of no disease that is attended by a diminished portion of urea ; but there is a variety of diabetes of which an *excess* of urea seems to be characteristic.

Lithic acid, is commonly supposed to exist in the urine in a free state, "and held in solution merely by its solubility in water." This opinion is improbable for the following reasons :

"*First*.—According to the analysis of Berzelius, 1000 parts of healthy urine contain in solution one part of lithic acid ; but Dr. Henry states, that one part of lithic acid requires, 60°, at least 1720 parts of water to dissolve it. Now how are we to reconcile these two statements, on the supposition that lithic acid exists in the urine in a free state? Secondly, the addition of any acid to the urine, even the carbonic, as is well known, throws down the lithic acid. How is it possible to explain this fact, except on the supposition that the new acid combines with something retaining the lithic acid in solution, which, being set at liberty, is thus incapable of remaining any longer in solution, and is consequently precipitated in the solid form. Thirdly, There is no instance known in which lithic acid is secreted in a free state : birds, serpents, &c. always secrete it in combination with ammonia : in the gouty chalk-stone it is secreted in combi-

nation with soda. To suppose, therefore, that the human kidney secretes lithic acid in a free state, is to suppose an exception to a law which appears to be very general. Lastly, The lithate of ammonia often *does* exist in large proportions in human urine, as is proved by the fact that many of the amorphous sediments consist chiefly of that compound, as will be shown hereafter. On reflecting upon these circumstances, I was induced to make some experiments on the subject, the result of which has been such as to render it probable that the lithic acid in healthy urine exists in a state of combination with ammonia, and that in reality this fluid contains no uncombined acid at all.

“ Thus with respect to the solubility of lithic acid in water, I find that this principle, when pure, requires about six times more water to dissolve it than has been stated by Dr. Henry, or at least 10,000 times its own weight at 60°; a fact which adds much to the improbability of the common opinion. On the contrary, the lithate of ammonia requires only about 480 times its weight at the same temperature; and if to the solution any acid be added, the lithate is immediately decomposed, and the acid precipitated in the solid state; just as happens to the urine when similarly treated. Further, the lithate of ammonia, when in solution, reddens litmus paper; and what is singular, and scarcely would have been expected, is likewise capable of existing in the same solution with a solution of the super-phosphate of ammonia, which, as is well known, has likewise the property of reddening litmus paper. Now, as the phosphate, or rather super-phosphate of ammonia exists in healthy urine, this fact, taken in conjunction with the others, enables us to account very satisfactorily for the two important points in question, namely, the property of reddening litmus paper possessed by that fluid, and also for the permanent state of solution in which the lithic acid is held in it; both of which appear inexplicable on the common opinion. Further, if we evaporate healthy urine slowly, as, for example, under the receiver of an air-pump, with sulphuric acid, the lithate of ammonia is deposited on the sides of the vessel in abundance, in the form of an amorphous sediment; whereas, if this acid existed in the urine in the free state, it should be deposited in a pure crystallized form. Lastly, the supposition that the lithic acid exists in the urine in

the state of lithate of ammonia, will enable us to throw considerable light on the phenomena presented by the urine in different diseases, as will be shown hereafter."

On the subject of the changes which lithic acid is capable of undergoing, the author makes the following observations:

"When nitric acid, diluted with about an equal bulk of water, is poured upon pure lithic acid, and a moderate heat is applied, an effervescence takes place, and the lithic acid is dissolved. If we concentrate this solution by a gentle evaporation, we obtain transparent colourless crystals, which have been found to constitute a peculiar acid, and have been hence named by M. Brugnatelli, who first described them, *erythric acid*. 2. If into a strong solution of these crystals in water, whilst boiling hot, we carefully drop pure ammonia, the solution acquires a beautiful purple colour, and crystals of *purpurate of ammonia* speedily begin to form and subside. 3. If these crystals are treated by means of potash and sulphuric acid, in a manner formerly described by me, pure *purpuric acid* is obtained in the form of a yellowish or cream-coloured powder. Such is a part of the series of changes which lithic acid is capable of undergoing, and apparently does undergo, in the human body in different diseases, either by the action of the kidneys, or the natural operation of the various principles existing in the urine upon one another, as we shall now attempt to explain.

"The amorphous, or uncrystallized sediments, usually denominated *pink* and *lateritious* sediments, and supposed by Proust to constitute a peculiar acid, which he named the *rosacic*, have been long known. These I find, by well known methods, to consist essentially of the *lithate of ammonia*, and sometimes of the *lithate of soda*. They owe their colour partly to the colouring matter of the urine, to be described hereafter, and partly (in some instances apparently, almost entirely) to the *purpurates of the same bases*. I acknowledge that it is difficult, or indeed almost impossible, to prove these latter points by direct experiment; but the following observations will, I think, place their truth beyond a doubt.

“When pure lithate of ammonia is diffused through fresh healthy urine, it attracts to itself a portion of the colouring matter of that fluid, and falls down in the state of a yellowish powder. But if the least quantity of a solution of an alkaline purpurate be added to the urine, such is the affinity of the lithate of ammonia for this colouring substance, that it immediately attracts the purpurate to itself, and assumes the form of a red or pink powder, more or less deep, and varying in tint according to the purpurate employed. From these observations it is evident that if ever the purpurates exist in the urine when amorphous sediments are precipitated from it, these sediments must necessarily become more or less tinged by them. To establish the point in question, therefore, we have now only to render it probable that the purpurates do exist in the urine under certain circumstances of disease.

“I have shown elsewhere, that the pink and lateritious sediments occasionally contain nitric acid in some peculiar state of combination. Now the purpuric acid, or rather the purpurate of ammonia, is only lithic acid modified by the action of the nitric acid. If, therefore, nitric acid and lithic acid exist in the urine together, it is exceedingly probable, or rather certain, that at the temperature of the human body, a portion of the lithic acid will be acted on by the nitric acid, and converted into *purpurate of ammonia*. These facts, then, especially when taken into account with the absolute identity of tint, are, I think, sufficient to convince every unprejudiced reader that the pink amorphous sediments owe their colour chiefly to the alkaline purpurates, though from the circumstance of their being merely as it were dyed with the purpurates, these cannot be separated, and thus actually be demonstrated to be present.”

We pass over our author's observations on the remaining principles which enter into the composition of healthy and morbid urine, and proceed to an account of the first chapter, which treats of the “*diseases in which the presence of an albuminous principle is the characteristic symptom.*”

The albuminous matter which occurs in urine, says the author, is of two kinds; namely, *chylous*, and *serous*. When

it is of the former kind it sometimes exists in great abundance, the urine undergoing a kind of spontaneous coagulation; but more frequently it is small in quantity and held in solution. Urine loaded with chylous albuminous matter generally soon enters into decomposition; this is particularly the case with urine passed some hours after meals. "This affection," says the author, "exists in every possible degree from barely perceptible traces of an albuminous principle to perfect chyle."

The symptoms which generally attend an albuminous condition of the urine are: a frequent desire to pass water, the urine being for the most part voided in excessive quantities. No pain is experienced; but the patient generally complains of "certain indescribable sensations which render him conscious that all is not right." When the diuresis is very great, there are "an inordinate craving for food and other symptoms somewhat resembling diabetes."

The author describes an interesting case which presents an extreme instance of this affection, and of which the following is an abstract.

The patient was a married woman aged about thirty years. The disease came on gradually. Her appetite was unnaturally great, and she had other diabetic symptoms: her general health, however, was but little affected, "and almost the only inconvenience she experienced was a constant difficulty of passing water, owing to the coagula which formed in the bladder blocking up the urethra." Nov. 1818. Three specimens of the patient's urine, "one voided in the morning, another soon after breakfast, and a third in the evening, were examined, and exhibited the following appearances. The first specimen acquired a jelly-like consistence, of a pale amber colour. This coagulum, when subjected to a gentle pressure, parted with a large portion of serous fluid, and assumed the appearance of a red fleshy-like mass of a fibrous texture, which, upon examination, was found to have all the proper-

ties of the fibrin of the blood mixed with a few red particles of the same. The second specimen differed from the first only in some minor particulars." The serum of both these specimens contained small portions of urea. The third specimen, "voided in the evening after an early dinner," so closely resembled chyle in all respects, that it could hardly be distinguished from this fluid. "It consisted of a solid coagulum of a white colour, and assuming the shape of the vessel" like *blanc-mange*. The residue, after pressing out its serous portion, was like that of the other specimens, small in quantity, but whiter. The serous portion resembled milk, and on being permitted to stand at rest, after having been heated, a cream-like substance rose to the surface, which contained "a considerable portion of butyaceous principle." It did not coagulate on being exposed to heat, although it contained a large portion of albuminous matter, "chiefly, however, in that state in which it exists in the chyle," and which our author denominates *incipient* albumen. Our author found that the coagulum formed by the patient's urine, voided after twenty-four hours' fasting, was much smaller, and contained more red particles. The serous portion, too, was nearly transparent, "and possessed in a considerable degree the colour and other sensible properties of urine."

A chylous condition of the urine is most apt to occur in persons of an irritable and scrofulous habit, and attended with impaired digestive powers.

Slight degrees of this affection do not seem to affect the constitution materially. "In this condition of the urine," says the author, "we can hardly lay down any specific plan of treatment, which must, therefore, depend very much on the nature of the disease with which the affection happens to be complicated.

The author says but little in relation to the second or *serous* form of albuminous matter. He thinks it questionable, however, whether the existence of *serous* urine is as Dr. Blackall maintains, an indication of the existence of an inflammatory state of the system.

“In the first place,” says Dr. Prout, “with respect to the existence of unaltered serum in the urine, it must be either of rare occurrence, or very difficult to discriminate; for, as before observed, by far the greater proportion of the cases of albuminous urine that have fallen under my own observation, has seemed to me to belong rather to the *chylous* variety than the *serous*: I admit, indeed, that in a few cases of dropsy the albuminous matter appeared to possess more of the *serous* character: but except in one or two instances, in which the lithate of ammonia also abounded in the urine in great quantity, I could not discover any thing else remarkable in these cases. In the cases, however, in which the lithate of ammonia abounded, the albuminous matter seemed not only to partake more decidedly of the serous character, but the strength of the pulse, and determination to the head, also sufficiently indicated the use of the lancet, which was employed freely with great advantage; one of these cases, however, after all, terminated in apoplexy, which proved fatal.”

CHAP. II.—*Diseases in which an excess of Urea is the characteristic symptom.*

The quantity of urea in *healthy* urine is so small that nitric acid does not produce its crystallization unless the urine is previously concentrated by evaporation. In certain morbid states of this secretion, however, the proportion of urea is so great as to crystallize on the addition of nitric acid without any concentration. “This,” says the author, “is always a mark of some derangement in the health, and occasionally appears to be characteristic of certain varieties of disease which have been probably frequently confounded with diabetes.”

“Those diseases in which an excess of urea may be considered as in some degree characteristic, do not appear to have been hitherto distinguished, but have been probably confounded with other diseases, and particularly with that form of diabetes which has been sometimes denominated diabetes *insipidus*. These diseases, however, differ considerably from diabetes, as the following observations will show:

“The average specific gravity of the urine in these complaints

seems to be a little above 1.020, and occasionally to vary from 1.015 to 1.030. Most generally it is pale, but occasionally it is high coloured, and exhibits somewhat the appearance of porter, more or less diluted with water; and this variety in appearance not unfrequently takes place in the urine of the same person. When first voided, it reddens litmus paper. For the most part it is entirely free from sediment, except the mucous cloud of healthy urine; and the only remarkable property which it appears to possess is that of containing abundance of urea, so that on the addition of nitric acid, crystallization speedily takes place. From the quantity of urea present, it is very prone to decomposition, and soon becomes alkaline, especially in warm weather.

“There is almost constantly in these diseases, a frequent and urgent desire of passing water both by night and day. This desire is for the most part evidently excited by actual *diuresis*, or the increased quantity of urine; but frequently it cannot be ascribed to this cause, as the quantity voided at one time is often by no means considerable; though in almost every instance that has fallen under my observation, the total quantity voided during any given time has appeared to be greater than natural. The quantity appears also to be particularly liable to be increased by cold weather, and by all causes producing mental agitation. There is sometimes a sense of weight or dull pain in the back; but this is by no means a constant symptom. There is also occasional irritation about the neck of the bladder, which sometimes extends along the urethra. The functions of the skin appear to be natural; at least in every case which has come under my own observation perspiration has been rather easily induced. The pulse is not affected. There is no remarkable thirst, nor craving for food, except in extreme cases, nor are the functions of the stomach and bowels much deranged; hence for the most part the tongue is clean, and the dejections regular and apparently natural.

“In most of the cases of this disease which have hitherto fallen under my own immediate observation, the subjects have been middle-aged men, of thin and spare habit, with a sort of hollow-eye, anxiety of expression in their countenance; free

from gout and constitutional disease in general, and, as far as could be ascertained, from any organic defect in the urinary organs. In every instance they had been induced to apply for medical advice, not so much from the pain, as from the inconvenience of the disease, and the dread of its ending in something worse; and, what may be worth remarking, in several instances confessed that they had been addicted to masturbation from very early youth.

“With respect to the causes of this affection, they are doubtless very various; whatever debilitates the system, and particularly the urinary organs, may give origin to it. Hence it may be induced by all those circumstances which gave origin to albuminous urine, diabetes, and the deposition of the phosphates, with which diseases, as we shall find hereafter, it seems to be intimately connected.”

The author relates two cases of this kind, one of which we condense, as illustrative at once of the character of the disease and of the author's mode of treating it.

March 6th. The patient aged forty-five. Symptoms resembling those of diabetes; constant craving for food; sense of cold over the body; he passed sixteen pints of urine in twenty-four hours. The urine contained a large quantity of urea, but no saccharine matter; and crystals of lithic acid were deposited. Ordered gr. $1\frac{1}{2}$ opii bis die. March 20th, much better; only two pints of urine passed in twenty-four hours. Soon after this date the patient became so well that he did not return to the hospital till Aug. 19th. He was now very weak, and felt as ill as ever, but the quantity of urine discharged in twenty-four hours did not exceed four pints. By the employment of opium his health again mended rapidly.

In most instances of this disease, our author derived decided advantage from opium. Purgatives and alteratives also proved beneficial, but stimulating articles always proved manifestly injurious.

CHAP. III.—*Diabetes*. The author restricts the term *diabetes* to those affections in which the urine is *saccharine*; and

hence he defines diabetes to be a disease, "in which a saccharine state of the urine is the characteristic symptom." Diabetic urine is almost entirely free from urea, and contains little or no lithic acid. "The usual saline matters existing in healthy urine are met with in diabetic urine in nearly the same relative proportions, but their absolute quantity is very much diminished."

The constitutional and other affections accompanying this disease are thus summarily enumerated by Mr. Watt:

"The appetite is usually better than in health. Uneasiness in the stomach after meals; thirst urgent; the mouth dry and parched; tongue white and foul, sometimes unnaturally clean and red; tough disagreeable mucus in the throat; depraved taste; skin dry and unperspirable; considerable emaciation; weariness and aversion to exercise; loss of strength; pain and weakness in the region of the kidneys; irregular, generally costive state of bowels; some degree of inflammation and uneasiness about the external orifice of the urethra; loss of virility; chilly state of body; cold feet; a tendency to œdema; heat and uneasiness in stomach and bowels; acid eructations; flatulence; eyes muddy and painful; indistinct vision; vertigo; head-ach; dyspnœa on the least exertion; gums spongy and ulcerated; weight and tenderness about the præcordia; a tendency to sigh; listlessness; mind weak and peevish; spirits greatly exhausted. The breath (and frequently the person of the patient) exhales a peculiar *hay-like* smell. The pulse variable, but generally in the latter stages, weak, and sometimes irregular."

This disease, says the author, must be considered in a two-fold light:—"first, simply as a saccharine state of the urine, without any regard to quantity; and, secondly, as a similar condition of the urine, accompanied by more or less *diuresis*." The existence of the first of these forms of disease, namely, a *saccharine* condition of the urine without *diuresis*, is, he thinks, "somewhat hypothetical:" yet he thinks that such a form of the disease *may* exist, since diabetes may be so far cured as to reduce the quantity of urine to its natural stand-

ard, and relieve all the usual symptoms of the disease, "*and yet the urine remain saccharine.*" In corroboration of this opinion, the author states that he has seen a case "in which the usual symptoms of diabetes subsequently manifested themselves in their worst form, and in which the patient's attention was attracted by the peculiar *qualities* of the urine long before its *quantity* struck him as any thing remarkable." Our author does not mean to assert, however, that a saccharine state of the urine *always* precedes *diuresis* in this disease; but he thinks it probable that this is *sometimes* the case. A natural predisposition to the disease exists in some individuals, and this predisposition appears even to be hereditary. Four distinct instances of this kind have come under our author's observation.

"The first was that of a young gentleman between twenty and thirty years of age, whose mother and uncle had died of the disease, and who feared that he laboured under the disease himself, as he appeared to have some of the symptoms. On examining the urine, however, I found no saccharine matter, but a great excess of urea, which seems to constitute the first step, in some instances, towards the presence of saccharine matter; but independently of this, the circumstance that two individuals, brother and sister, of the same family, died of the disease, is sufficient to mark the *family* nature of the affection. The second case was that of a lady about fifty years of age, whose brother or sister, I do not remember which, had died of the same disease. The third case was that of a young girl about ten years of age, in whom the disease proved fatal, and whose father, two or three years before, had died of a similar affection. And it may be remarked, that in August last I was requested to examine the urine of another girl of the same family, and about the same age, who it was feared had a tendency to the same affection. The urine contained no sugar, but a great excess of urea, thus clearly marking the tendency to the affection. The fourth instance was that of a gentleman who died of this affection at the age of fifty-four, and whose father for many years before his death was stated to have laboured under the same disease. What is remarkable

and well worth mentioning, this gentleman's son, who was about thirty years of age, stated that he was much troubled with lithic acid gravel."

We have ourselves seen a remarkable example of this kind. About four years ago we attended a young man affected with this disease, who after suffering from it for about six weeks, died in a state of extreme emaciation. He informed us that one of his brothers and his mother had in the course of five or six years died of this complaint. Dr. Parrish saw this patient with us.

"From these circumstances, then, and others that, perhaps, might be mentioned, I am induced to believe, that a tendency to this affection, frequently inherited, and amounting perhaps, in some instances, to an actual saccharine condition of the urine, exists in certain individuals, which on being roused or called into action by some favourable exciting circumstance, such as exposure to cold, or any thing inducing feverish or inflammatory action, becomes for the first time complicated with diuresis, and thus assumes all the well known characters of diabetes.

Treatment.—General blood-letting, says our author, will, often be necessary in recent cases of an acute character; but in very protracted cases, where the debility is great, this remedy can seldom be required. It appears from the observations of Mr. Watt, that the pulse cannot be generally relied on as an indication of the propriety of venesection. "In one case related by this writer, the pulse was slow, feeble, and irregular; the strength and spirits almost gone; the lower extremities œdematous, cold and lifeless; the blood very dark, crassamentum as black as pitch and devoid of tenacity; and *yet the lancet did great good.* The state of the blood in this case forbade the practice; yet the bleeding was repeated six times, and it was not till the fourth that it was changed, and the crassamentum became dense and sizzly on the top; on the fifth the buffy coat was contracted; the sixth it was still

firmer. The patient felt better after every bleeding, and after the fifth all the symptoms were removed."

Frequent local bleeding from the epigastric regions, says Dr. Prout, has been found beneficial. Aperients also should be so employed as to keep the bowels freely open. He thinks castor oil the best article for this purpose. Saline cathartics are in general injurious on account of their tendency to stimulate the kidneys. Mercury, too, is an article which should be cautiously employed. "When mercurial alteratives are necessary, says the author, the *hydrarg. cum creata* seems to be the best adapted to the purpose. Opium is frequently an indispensable remedy in this disease; particularly in cases attended with much nervous irritability: "and of all the preparations of opium, says the author, the *pulv. ipecac. compos.* from its well-known property of determining to the skin, appears to me to be the best suited to the purpose." Opium, however, cannot be prudently given in cases of an acute character without the previous abstraction of blood.

"In cases of a chronic character, and accompanied by much debility and nervous irritation, I have seen the very best effects produced by a combination of the preparation of opium above mentioned, and full doses of the *carbonas ferri*, exhibited in the form of an electuary, made with the *albumen ovi*. In such cases, as the patient recovers, the quantity of the sedative may be gradually diminished, while that of the tonic (provided nothing contra-indicates its use) may be increased."

Together with the above remedies various applications to excite the functions of the cutaneous exhalents, are often decidedly beneficial. The warm bath, frictions with the flesh-brush, or dry flannel will generally answer this purpose better than any other means. Flannel should be constantly worn next the skin. "But of all means," says the author, "attention to diet and regimen seems to be of the most importance in the treatment of diabetes." The quantity of fluid

taken by the patient should be as small as possible, "for if he be permitted to drink *ad libitum* we can scarcely hope for benefit from any remedy." The author thinks that the purer the water,—that is, the freer from foreign substances it is, the better will it answer as a drink for diabetic patients. As a general rule all drinks should be taken in a *tepid* state, "as the patient, whose craving is generally for *cold* drinks, will thus content himself with less." Drinks should not be taken when the stomach is loaded with solid food.

The diet should consist wholly of animal and farinaceous substances; and saccharine and acid matters should be most rigidly avoided. Care must also be taken not to allow the patient to take much food at a time.

"I believe," says the author, "the greater number of cases of sudden death in this affection (which is by no means an uncommon termination of it,) have been distinctly referable to errors either in the quality or quantity of the food, or both; that is to say, the patient has been generally cut off after a *hearty meal*, as it is vulgarly termed. As a general rule with respect to diet, I should say, that a quantity greater or less, according to circumstances, but always *strictly regulated*, should be taken at periods of four, five, or six hours; and that at the time of taking solid food, and for an hour or two afterwards, all drink should be abstained from as much as possible. Were I to particularize the species of food, I should say generally, that mutton or beef, plainly cooked, and particularly mutton-chops or beef-steaks, rarely done, should be taken twice in the twenty-four hours, and that the other meals should consist of any simple article that can be prepared from farinaceous matters with milk, eggs, &c. only.

CHAP. IV.—*Description of Urinary Gravel and Calculi, with a summary account of their Chemical Composition, &c.*

1. *Pulverulent or amorphous sediments*.—These sediments are held in solution in the urine, when it is discharged;

but as the urine cools they are deposited in the state of a fine powder. Their colour, for the most part, is red, "diluted with more or less of brown or yellow." Their composition too is various, but "generally speaking they may be stated to consist of two species of neutral saline compounds, viz. the *lithates* of ammonia, soda, and lime tinged more or less with the colouring principle of the urine, and with the purpurates of the same bases, and constituting what are usually called *lateritious* and *pink* sediments; and secondly, the phosphate of lime, and the triple phosphate of magnesia and ammonia, constituting for the most part sediments nearly white."

2. *Crystallized sediments, or gravel.*—This form of sediment is generally voided with the urine in the form of small grains or crystals. These crystals consist, first, of lithic acid; second, triple phosphate of magnesia and ammonia; and third, oxalate of lime. The first are always more or less red; the second kind are always white; and the last of a dark blackish green colour. These different forms of urinary gravel are "*never voided together in the same urine.*"

3. *Solid concretions or urinary calculi.*—The author enumerates thirteen species of urinary calculi, viz.

1. *Lithic acid calculus.*—Colour, brownish red or fawn, occasionally approaching to that of mahogany. Surface smooth, sometimes tuberculated, structure consisting of concentric laminæ. By the assistance of heat the lithic acid dissolves in nitric acid; "and if the solution be evaporated to dryness, the residue assumes a beautiful pink or carmine colour."

2. *Lithate of ammonia calculus.*—Generally of a clay colour; smooth, sometimes tuberculated; fracture earthy, composed of concentric layers. Dissolves readily in the alkaline sub-carbonates; when heated with caustic potash it gives off a strong smell of ammonia.

3. *The oxalate of lime, or mulberry calculus.*—Colour, dark brown, approaching to black; surface rough and tuberculated; texture imperfectly laminated; expands into a white

mass before the blow-pipe, which when moistened stains turmeric paper red.

4. *Cystic oxide calculus*.—Colour, yellowish white; surface commonly smooth, exhibiting a crystallized appearance; texture confusedly crystallized; fracture glistening, “like that of a body having a high refractive density.” Small pieces semi-transparent; emits a peculiar odour before the blow-pipe, readily soluble both in acids and alkalies.

5. *The bone-earth, or phosphate of lime calculus*.—Generally pale brown; surface very smooth; structure regularly laminated—the laminæ being striated in a direction perpendicular to the surface. Soluble in muriatic acid; but infusible by the heat of the blow-pipe.

6. *Triple phosphate of magnesia, and ammonia calculus*.—Always nearly white; surface commonly uneven, and covered with small shining crystals; friable; not laminated; emits the odour of ammonia before the blow-pipe, and at length melts; soluble in dilute acids.

7. *The calculus composed of a mixture of the phosphate of lime, and triple phosphate of magnesia and ammonia, or the fusible calculus*.—Very white and friable, like chalk; generally not lamelated; sometimes separates readily into laminæ. Occurs very frequently; the unlaminated variety often acquiring a very large size. It melts easily before the blow-pipe, and is very soluble in acids.

8. *The alternating calculus*.—Consists of different layers of some of the preceding species. Most commonly the nucleus consists of lithic acid, and the external crust of the fusible calculus. The size is often very large. Three or even four different varieties sometimes enter into its composition.

9. *Mixed calculi*.—Composed of an intimate mixture of two or more of the preceding species. Colour various; generally not laminated and hard; seldom of large size.

10. *Carbonate of lime calculus*.—Very uncommon, and always quite small; perfectly white and friable.

11. *The xanthic oxide calculus*.—"Of which only one specimen seems to have been observed."

12. *The fibrinous calculus*.—Composed apparently of the fibrin of the blood. The two preceding varieties are uncommonly rare, and were first noticed by Dr. Marcet.

13. *The prostate calculus*.—Consists chiefly of phosphate of lime.

CHAP. V.—*Data showing the comparative prevalency of the different forms of Urinary Deposite, &c.*

According to the data furnished by the author, it would appear that one-third of the whole number of calculi are of that kind in which the lithic acid predominates. Those composed chiefly of the oxalate of lime or the mulberry calculi, constitute rather less than one-seventh of the whole number. The cystic oxyd calculi are exceedingly rare; occurring in the proportion of one to two hundred and seventy-four. One-fourth of the whole number of calculi consists of the phosphates. It appears that between one-fourth and one-fifth of the whole number belong to the class of the *alternating* calculi. "This calculi," says the author, "constitute by far the most interesting and important species of calculi, in a pathological point of view, since they present us with a faithful record of the order of succession of the different diathesis, &c.

"Out of eight hundred and twenty-three calculi, the aggregate of all the collections, only *three* specimens are stated to exist in which the phosphates have been followed or surrounded by other calculus deposite. Hence it may be laid down as a general law,

"That in urinary calculi a decided deposition of the mixed phosphates is not followed by other depositions.

"To this important law there are certainly very few exceptions; and in all the numerous calculi that have fallen under my own observation, I do not recollect a decided instance of one; for in every case in which there appeared at first sight to

be an exception to it, this was found, upon a closer examination, to be more apparent than real. The following is a description of a calculus constituting such an apparent exception. The nucleus was composed of a loose aggregate of particles, consisting principally of the lithate of ammonia, of a pale brown colour. Round this was deposited a layer of considerable thickness, composed almost entirely of the same substance, but hard and compact; without this was deposited an imperfect lamina of the triple phosphate of magnesia and ammonia; and beyond this, several thin and irregular laminæ of the lithate of ammonia and triple phosphate, intimately intermixed with one another: lastly, the whole was covered by a layer of the triple phosphate of magnesia and ammonia, perfectly white, and of a crystallized texture, and consequently nearly pure. Hence this hardly constituted an exception to the general law; for, as will be hereafter shown, the lithate of ammonia seems to constitute, as it were, the intermediate link between the lithic acid and phosphates."

However various in their composition and appearance, it may be readily perceived, says the author, that all calculi are in fact made up of the four following elementary substances, viz. 1. *The lithic acid and its compounds.* 2. *The oxalate of lime.* 3. *The cystic oxyde;* and 4. *The earthy phosphates.* We seldom, if ever, find more than one of these principles in excess in the urine at the same time; "hence they may be supposed to represent so many distinct diatheses or conditions of the system requiring to be separately considered."

CHAP. VI.—*Of the Lithic acid, Diathesis in general, &c.*

The amorphous sediments, as has been already observed, consist of lithic acid in combination with some base, generally *ammonia*; and a deposition of such sediments is indicative of an *excess* of the lithic acid in the urine. The exciting causes of an excess of lithic acid, are, according to our author, of three kinds, viz. 1. "Simple errors in diet. 2. Unusual or unnatural exercise either bodily or mental, particularly

after eating, and want of proper exercise at all other times; and 3. Debilitating circumstances.”

In relation to wholesome diet, it has been observed, that an excess of *lithate* of ammonia is *invariably* produced by an unusually *full* meal of animal food or bread; by an abrupt change in the time of eating; and frequently, “by partaking of food to which the person has not been used. Whatever is difficult of digestion also is apt to increase the deposition of lithate of ammonia.”

The amorphous sediments are very various in colour; but as it would be impossible to point out all those modifications, the author considers them under three heads only—namely, 1. *Yellow*. 2. *Red* or *lateritious*, and 3. *Pink* sediments.

The first variety vary from nearly white to the *wood-brown* of Werner. This class of sediments, says the author, may be termed the *sediments of health*. There are few individuals whose urine does not occasionally deposite this variety of sediment. Children are particularly subject to it. When it becomes excessive it is frequently the forerunner of gravel or calculus.

The red or lateritious sediments vary in tint from nearly white to a deep brown. The presence of this class of sediments is almost always connected with an inflammatory, or febrile state of the system. “The deeper the colour of the sediment and the more approaching to *red*, the more severe in general are the symptoms.” Persons who are very subject to this form of urinary sediment are naturally of a feverish, irritable habit, and easily affected by slight causes, “such as trifling errors in diet, a chilly state of the atmosphere, &c.”

Pink sediments.—These, like the other varieties, consist essentially of lithate of ammonia. They occur in dropsical patients, and occasionally in hectic fever. The colouring matter of the amorphous sediments is derived from two sources; first, the natural colouring principle of the urine,

and second, the *purpurates*, “a class of substances not existing in healthy urine, but in that only of persons labouring under fever.”

“Such,” says our author, “is an outline of the circumstances which have been observed respecting those amorphous sediments composed principally of the lithic acid. To render them, if possible, still more distinct, I shall briefly recapitulate them: Amorphous sediments owe their colours to two classes of substances, differing from one another; the first of these is, apparently, an ingredient of healthy urine, and helps to impart a yellow colour to that fluid. This ingredient is liable to be very much increased in active inflammatory fevers, though, of course, its presence does not necessarily indicate fever. The second source of colour is the *purpurates*, a class of substances not existing in healthy urine, but in that only of persons labouring under fever. These two substances naturally give rise to three varieties of sediments: 1. Lithate of ammonia tinged by the colouring matter of the urine only, and not necessarily indicating fever; 2. Tinged by a mixture of an excess of the same ingredient, and more or less of the *purpurates*, indicating for the most part active inflammatory fever; and, 3. Tinged by the *purpurate* of ammonia only, indicating general fever, of an irritable nature, as *hectic*?”

On the subject of crystallized sediments our author makes some very interesting observations.

These sediments consist of nearly pure lithic acid, and exist in a state of solution in healthy urine at all ordinary temperatures. When, however, a *free* acid is generated by the kidneys, the lithic acid is precipitated in the form of minute crystals, constituting this form of urinary sediment. The precipitating acid is most commonly the *muriate*, sometimes the *phosphoric* or *sulphuric*. Our author has never seen this form of sediment of a *pink* colour—it is generally more or less lateritious. The general symptoms attending crystallized sediments are—more or less pain in the lumbar region; irritation and sense of heat at the neck of the bladder and urethra;

frequent desire to micturate—the urine being passed in small quantities “and without affording the usual relief, the sensation of something being left behind in the bladder.” Children are exceedingly liable to lithic deposits in the urine. There is less disposition to the formation of deposits of this kind between the age of puberty and forty-one, than at any other period of life.

“About the age of forty an important change commonly takes place in the constitution, which, for the most part, materially influences the disposition of lithic acid in the urine. It will be generally now observed that the lithic acid is apt to be deposited at intervals in larger quantities than usual, and that for some time previously to this occurrence there is more or less of feverish indisposition and derangement of the general health: about this period of life also there is a disposition in the constitution, at the above periods particularly, to separate the lithic acid in a concrete state, thus giving origin to the formation of renal calculus, and the consequent train of secondary symptoms, to be detailed presently, when we come to speak particularly of that occurrence. These circumstances are most liable to take place in those individuals who have all their lives been subject to lithic acid deposits, but they not unfrequently occur also at the period of life we are considering, in those who have never previously suffered from these affections, but who have lived luxuriously and indolently, or who inherit a tendency to gout, though they have never, perhaps, had an open attack of that disease.

“Whoever has much attended to urinary diseases must have remarked the circumstance above alluded to, viz. that patients subject to derangements of the general health, connected with urinary deposits, seldom feel so well with respect to the former, as when lithic acid gravel is deposited in the urine. Now this circumstance is even more strikingly illustrated by those attacks of gravel that are apt to commence about the period of life we are considering. Thus we shall frequently find, that patients who had previously for months, or even years, been subject to various anomalous nervous affections and pains in different parts

of the system, accompanied by great derangement of the digestive functions, will suddenly obtain relief from the whole by a discharge of lithic acid gravel in the urine, or, perhaps, a small renal calculus. Now, although it would be absurd to consider the lithic acid in such cases as the real *materies morbi*, yet, in many instances, about this period of life, we may begin to consider it as the symbol or representative of such a *materies*, and treat it accordingly: that is to say, we may frequently produce much relief to the system at large by promoting or producing artificially a discharge of lithic acid with the urine, as will be pointed out more particularly when we come to speak of the treatment of these affections."

About the age of sixty or seventy "another change takes place in the mode in which the lithic acid is separated from the system." At this period the urinary organs are apt "to participate in the general decay of the constitution," and often become organically diseased. Under these circumstances, instead of pure lithic acid crystals, "impure or imperfect lithic acid, in the shape of minute globules of various sizes, will be separated from the kidneys in great abundance."

The following remarks of our author, on the circumstances which usually attend the formation of a nephritic calculus, are ingenuous and interesting:

"The urine of those individuals who possess a disposition to the disease, continues, as just observed, for a great length of time, perhaps almost constantly, to deposit lithic acid in some form or other. This being accompanied by no very remarkable or severe symptoms, often escapes their observation; they proceed, therefore, in their usual habits, while the disease insidiously continues to gain ground daily: at length, about the age of forty, the affection begins to assume its most aggravated form, and both crystallized and amorphous sediments appear in the urine, sometimes in enormous quantities: at the same time a peculiar state of the system, accompanied by fever, and closely resembling that present in gout, to which it is generally referred, comes on; the urine is now very much diminished in quan-

tity (often amounting almost to suppression,) its specific gravity unusually great, its colour very deep, the sediments unusually large (or occasionally they disappear altogether;) and under these circumstances lithic acid is separated by the kidney in the state of a semi-fluid hydrate, which becoming solid gives origin to renal calculus. During the above state there is commonly a sense of dull pain or weight in the region of the kidney and just above the pubes; but as these are not particularly severe, they are little attended to; and after a few days the whole gradually subside, or perhaps terminate in an attack of the gout. Sooner or later after the above symptoms, but commonly not till they have subsided, and the urine has begun to be secreted in its usual quantity, the patient is seized all at once, and perhaps without the least warning, with a most acute pain in the region of the kidney, accompanied by violent sickness and vomiting, and other symptoms, to be hereafter described, when we come to treat of the mechanical effects of these concretions."

"In recapitulating the circumstances which give origin to these sediments, in general it may be stated, that they are of two general descriptions, *natural* or *acquired*. With respect to those of the first description, it cannot, I think, be doubted, that certain individuals are much more liable to these sediments than others. This tendency, as before remarked, with respect to urinary affections in general, is not unfrequently inherited; thus, I knew a family where both the grandfather and father appeared to have lithic calculi in the bladder; and where the grandson has a very strong tendency to the same disease; his urine depositing frequently very large quantities of lithic acid, both in the form of amorphous and crystallized sediments. Sir Gilbert Blane has remarked also, that he has frequently observed calculus complaints connected with cutaneous affections, and 'particularly with those impetiginous affections which depend on an hereditary constitution, and incident to what is called a scorbutic habit.' Now this precisely accords with my own observations, not only with respect to urinary diseases, but with respect also to organic affections in general of the urinary organs; and I had made the remark long before I was aware that

it had been noticed by any one else: I think I have also remarked, that individuals who are subject to urinary derangements, are apt to be liable to that dangerous affection termed *diffuse* inflammation, which consists in a gradual extension of inflammatory action, from a trifling wound, over the whole system. On the other hand, the disposition to generate these sediments in excess, is, like gout, or rather simultaneously with gout, but too frequently acquired by indolent habits, and excess in eating and drinking. Most frequently, however, the tendency to these diseases is connected with some unknown causes peculiar to certain districts or countries, as, for example, the district of which Norwich may be considered as the centre, in which more calculous cases occur than in the whole of Ireland or Scotland. In such instances, the water, diet, temperature, &c. of the district has been each accused, in its turn, of being the exciting cause; and that hard waters, in conjunction with other favourable circumstances, have a great influence in producing this affection, I have no doubt. I have also in one or two instances seen a fit of lithic gravel induced in the predisposed by sitting on a damp cold seat for some hours; and sometimes a tendency to deposite large quantities of lithic acid is evidently connected with local injury or disease of the kidney."

In relation to the means which may be employed for counteracting this class of urinary diseases, our author observes, that where the sediments are of the *amorphous* kind, an attention to the diet is of primary importance. "The error of *quantity* in diet," he says, "is of infinitely more importance than the error of *quality*." The articles of food most injurious are, "heavy unfermented bread; hard boiled and fat puddings; salted and dried meats; ascendent fruits and soups of every kind." Malt liquors and wine also are improper. Flannel wore about the loins will often be found serviceable; and an attention to the regular action of the bowels is indispensable.

When the urinary deposite is of the crystallized lithic acid kind, along with the regimen already mentioned, *alkaline* remedies are particularly indicated. To be really beneficial,

however, the alkaline remedies must be given in conjunction with *alteratives* and purgatives.

“Thus the pil. submur. hydrarg. com. or a pill composed of the pil. hydrarg. and pulv. antimonialis may be taken twice or thrice a week at bed time, and followed up the next morning by an active dose of the sub-sulphate of magnesia; or a mixture of Rochelle salts and magnesia, or carbonate of soda. A little of either of these compounds may be also taken twice or thrice in the day, so as to keep the urine constantly neutral or alkaline, and the bowels freely open; or gr. x. to xx. of magnesia may be taken for the same purpose in a glass of soda water, as often as it may be found necessary.”*

“We have said that about the age of forty the lithic acid may not inaptly be considered as a sort of *materies morbi*; that is to say, the cause of irritation in the constitution, whatever it may be, seems to be transferred to the kidneys, which are thus induced to secrete an extraordinary quantity of lithic acid, and by this means to give great relief to the system at large. Upon this principle it is, that the good effects long ascribed to certain remedies of the active diuretic kind may be probably explained; such remedies appearing to possess the power, when given in certain favourable conditions of the system, of exciting the kidneys to secrete large quantities of lithic acid, and, in this way, by bringing about a sort of artificial crisis, to produce great temporary relief. Thus, Dr. Henry has mentioned cases in which *several ounces* of lithic acid were brought away in the course of

* “Sir G. Blane, in the essays above quoted, first pointed out the effects of saline compounds containing a vegetable acid in rendering the urine alkaline; but this circumstance seems to have attracted little attention, and indeed even at the present time is, I fear, very far from being generally known; otherwise the common saline draught would be exhibited with a little more caution than it sometimes is in urinary and vesical diseases. In most cases of the form of disease we are now considering there is not a more effectual remedy; but in other states of urinary disease, were I required to name the remedy calculated to do the most mischief, I should name the common saline draught, formed of potash or soda, *and some vegetable acid*. This subject will be considered more fully hereafter.”

a day or two, by a remedy apparently composed of turpentine and laudanum chiefly.

“In remedies of this class, opium, not only on account of its sedative properties, but likewise from the property it possesses of increasing the secretion of the lithic acid, should probably, in most instances, form a constituent principle; but the diuretic ingredients may vary. Thus instead of turpentine, a combination of muriatic acid and opium will sometimes answer very well, particularly when the lithic acid is not disposed to concrete, but comes away in the form of gravel; or the terebinthine remedy may be conjoined with the acid and opium. When, on the contrary, the lithic acid is more disposed to concrete, the muriatic acid may be omitted, and potash may be substituted, by which means the lithic acid will be held in solution; and this, perhaps, in most instances, is the safer combination. To this class may be likewise referred many of the ancient and still popular remedies in gravelly affections, such as the seeds of the wild carrot, the parseley breakstone (*alchemilla arvensis*,) &c. many of which produce a large secretion of lithic acid in particular states of the system. Even *hard waters*, however paradoxical it may appear, sometimes do good on the same principle; and by acting as diuretics bring away large quantities of gravel, as I have known more than once happen. Occasionally, however, a mere change of water, not only from soft to hard, but the reverse, will have the same effect.”

In the 7th chapter the author treats of the *oxalate of lime diathesis*; and the 8th is taken up with an account of the *cystic oxide diathesis*. We pass on, however, with our analysis to the 9th chapter, which is devoted to the more important subject, “*of the phosphatic or earthy diathesis*.” The deposition of the phosphates, says our author, is rarely an original disease. It is almost invariably “consequent to the other forms of urinary deposition,” particularly of those of the lithic acid and oxalate of lime. The *crystallized* phosphatic sediments *almost* constantly consist of the *triple phosphate of magnesia and ammonia*, “and exist in the form of perfectly white shining crystals.” The constitutional

VOL. III.—F

symptoms are usually derangement of the digestive organs; much nervous irritation; pain or uneasiness in the back or urinary organs; with a sense of general lassitude and want of energy.

“The urine in this form of disease is generally abundant in quantity, and for the most part pale coloured (though there are exceptions to this,) and upon standing for some time, an iridescent pellicle is frequently formed upon its surface, which upon examination proves to be crystallized, and is composed chiefly of the salt in question. Minute crystals of the same salt also frequently attach themselves to the sides of the vessel in which the urine has stood for a short time. Urine abounding in this salt is often of considerable specific gravity, contains abundance of urea, and is very apt to become alkaline and putrescent. Sometimes, on the contrary, the specific gravity is lower than natural. When this salt abounds very much, the crystallized deposit is formed before the urine is discharged from the bladder, and consequently immediately subsides to the bottom of the vessel in which it is passed; in this case the urine is alkaline when voided; most generally, however, the crystals do not begin to form till the urine has become cool, and sometimes not till it has begun to putrify; and these circumstances indicating the periods when the urine become alkaline, may be considered as pointing out the degree of severity of the disease.”

The *amorphous* phosphatic sediments, says our author, invariably consist “of a mixture of the phosphate of lime, and of the triple phosphate of magnesia and ammonia.”

When in this triple compound the phosphate of *lime* predominates, the symptoms are almost always decided and severe. The symptoms which characterize this form of urinary deposition are often very distressing.

“They consist in great irritability of the system, and derangement of the chylopoietic viscera in general; such as flatulency and nausea, obstinate costiveness, or peculiarly debilitating diarrhoea, or both, frequently alternating; and the stools are

extremely unnatural, being either nearly black, or clay coloured, or sometimes like yest. These are always accompanied by more or less of a sensation of pain, uneasiness, or weakness, in the back and loins. There is a sallow, haggard expression of countenance; and, as the disease proceeds, symptoms somewhat analogous to those of diabetes begin to appear, such as great languor and depression of spirits, coldness of the legs, complete anaphrodisia, and other symptoms of extreme debility; and the disease if not speedily checked, seems capable of ending fatally. The urine in this form of disease is invariably pale coloured, and, upon the whole, voided in greater quantity than natural. Sometimes (generally, I think, by day) it is voided in very profuse abundance; and in this case is of very low specific gravity; 1.001 or 1.002, for example. At other times it is voided in less quantity, and its specific gravity is proportionally higher, but it is seldom very high, that is, surpassing 1.025. In the former case it is generally perfectly pellucid and colourless, and deposits no sediment; in the latter, it is sometimes opaque when passed, and always after standing for a greater or less time deposits a most copious precipitate of the mixed phosphates, in the state of an impalpable powder. In all cases the urine is extremely prone to decomposition, becomes alkaline by the evolution of ammonia, and emits a most disgusting smell. To those who have never seen this condition of the urine, the above will probably furnish but an imperfect idea. I trust, however, that the description will enable any one to distinguish such urine when they see it; and when they have once paid attention to its properties, they will afterwards readily recognize it."

The causes of this complaint may be either general or local. Our author regards "*some injury of the back*," such as a fall from a horse, or whatever occasions "a violent general concussion of the spine," or some local injury about the back, as a very frequent exciting cause of this affection. Severe and protracted debilitating passions, excessive fatigue, &c. are enumerated among its general exciting causes. "The local causes are, generally some irritation about the bladder or urethra, as for example any foreign substance introduced

into the bladder, including all sorts of calculi under certain circumstances; the retaining of a bougie or catheter in the urethra; strictures of the urethra in some rare cases, and in particular constitutions, &c."

Treatment.—The indications of cure, according to the author, are—"to diminish the morbid irritability of the system, and to restore the state of the general health, and particularly of the urinary organs, by tonics and other appropriate remedies." *Opium* is a remedy of great value in this affection. From gr. i. to grs. v. must be given two or three times a day. "Under this remedy the distressing symptoms will commonly be speedily relieved."

In addition to this remedy, the mineral acids, cinchona, *uva ursi*, the preparations of iron and other tonics are for the most part indispensable. A large pitch, or soap, or galbanum plaster applied to the loins, will also assist materially in relieving the distress felt in that part. The bowels are difficult to be regulated in this form of disease. Though frequently constipated, they do not always admit of purgatives, particularly of the active kind. The author has known the most serious consequences from the action of a small dose of calomel. Saline purgatives, particularly such as contain a vegetable acid, must be avoided. Castor oil in small doses and laxative injections answer well. Mercury is capable of doing a great deal of mischief, especially when it acts on the system generally. Above all, *alkaline* remedies must be carefully avoided; nor can *diuretics* of any kind be employed without running a risk of doing much harm.

"In less severe cases the *hyoscyamus* is an excellent remedy, especially when combined with the extract of *uva ursi*, and more or less, according to circumstances, of the *extr. opii*. The same is true of the *alchemilla arvensis*, a strong infusion of which, taken frequently, sometimes gives great relief. In such cases, also, occasional purgatives, especially those of the milder class, may be employed with safety and advantage. Indeed in some of the diseases of children, in which the triple phosphate in par-

ticular is copiously deposited, repeated purgative doses of calomel and rhubarb are of the utmost utility. These diseases may be commonly distinguished by the absence of the severe symptoms above mentioned, and by the high specific gravity of the urine."

The diet should be mild and nutritious, and taken in moderate quantities. Our author is inclined to recommend "an animal diet in preference to an acescent vegetable diet." No remedies, however, will do much if the *mind* cannot be set at rest. "The influence of mental anxiety," says the author, "is really astonishing in this disease; and absence from care, the exhilarating air of the country, and such exercises as are consistent with the patient's condition will, perhaps, more than any thing else, contribute to the cure."

The remaining portion of this volume embraces an account of the symptoms of urinary calculi when lodged in the kidney and bladder, with some interesting observations on various other diseases of the urinary organs, occasionally produced by or liable to be mistaken for calculus affections. Our author dwells particularly on the great importance of attending to the state of the urine in these affections. His chapter on the "data, showing the periods of life, sex, &c. most subject to calculous affections, and the mortality attending the operations of lithotomy, with remarks on the circumstances in which lithotomy ought or ought not to be performed, is full of interesting and valuable matter.

For the following data, respecting the periods of life in which persons appear to be most subject to calculous affections, our author acknowledges himself principally indebted to Dr. Marcet and Mr. Smith.

		Age.	1	2	3	4	5	6	7	8	9	10	Consisting of		
			Cases.	0	*1	17	22	20	14	17	7	25	Males.	Females.	Total.
Under 10 years													134	2	136
Between 10 and 20	Age.		11	12	13	14	15	16	17	18	19	20			
	Cases.		11	16	10	5	4	5	2	5	5	2	62	3	65
Between 20 and 30	Age.		21	22	23	24	25	26	27	28	29	30			
	Cases.		7	3	1	4	4	2	4	2	4	4	34	1	35
Between 30 and 40	Age.		31	32	33	34	35	36	37	38	39	40			
	Cases.		4	4	3	1	3	5	4	4	3	3	33	1	34
Between 40 and 50	Age.		41	42	43	44	45	46	47	48	49	50			
	Cases.		4	3	4	4	4	3	2	3	2	8	37	0	37
Between 50 and 60	Age.		51	52	53	54	55	56	57	58	59	60			
	Cases.		3	3	2	5	1	3	4	3	1	3	28	0	28
Between 60 and 70	Age.		61	62	63	64	65	66	67	68	69	70			
	Cases.		1	2	4	1	1	2	1	1	3	2	18	0	18
Between 70 and 80	Age.		71	72	73	74	75	76	77	78	79	80			
	Cases.		0	0	0	0	1	0	0	0	1	0	2	0	2
General Totals,													348	7	325

"The foregoing table is taken from Mr. Smith's valuable paper, and represents the number of cases of operation for stone at all ages, which have occurred in the Bristol Infirmary.

"The following table, of similar import, though less extensive and perfect, is taken from the same excellent paper. The district is of that of which the town of Leeds forms the centre, and the data are taken from the surgeons' books of the Leeds Infirmary:

10 years and under	-	83 Cases.
Between 10 and 20	-	21
20 and 30	-	21
30 and 40	-	12
40 and 50	-	28
50 and 60	-	21
60 and 70	-	9
70 and 80	-	2

Consisting of Males 188, Females 9. Total 197

* No operation.

“During a period of forty-four years, namely, from 1772 to 1816, according to Dr. Marcet, the following is a summary of the returns of cases of lithotomy in the Norfolk and Norwich hospital:

	Consisting of		
	Males.	Females.	Totals.
Children under 14 years	227	8	235
Adults - - -	251	20	271
Totals	478	28	506

“The following table presents a general view of these data; and, as far as they can be exhibited, of the proportions of stone cases before and after puberty, and of their occurrence in the different sexes:

	Bristol.	Leeds.	Norwich.	Total.	Consisting of	
					Males.	Females.
14 years and under	178	96*	235	509		
Above 14 years	177	101	271	549		
	355	197	506	1058	1014	44

In relation to the degree of mortality from the operation of lithotomy, our author presents his readers with the following interesting data and observations:

“The following is a summary of the most perfect data we possess on this subject. The first and most complete table is taken from Mr. Smith’s paper, so often quoted, and represents the mortality from lithotomy, as it has occurred at different ages in the Bristol Infirmary:

Age.	Rate of	
	Mortality.	
10 years of age and under	1 in $4\frac{1}{2}$	
Between - 10 and 20	1 - 5	
20 - 30	1 - 7	
30 - 40	1 - 5	
40 - 50	1 - $3\frac{1}{3}$	
50 - 60	1 - $4\frac{1}{3}$	
60 - 70	1 - $2\frac{1}{2}$	
70 - 80	1 - 2	
Mean at all ages.	1 - $4\frac{1}{4}$ or	

{ Before puberty,†
nearly as 1 in $4\frac{3}{4}$
After do.† nearly
as 1 in 4 3-14.

* Estimated partly from the proportions in the Bristol tables.

† Partly estimated.

“The following table is also taken from the same paper, and refers to the Leeds district. There occurred in the Leeds Hospital,

Cases of Lithotomy.		Died.	Rate of Mortality.	
From 1767 to 1777	24 of which		or 1 in	12
1777 - 1787	62	- 8	1 -	7 3-4
1787 - 1797	23	- 3	1 -	7 2-3
1797 - 1807	42	- 7	1 -	6
1807 - 1817	46	- 8	1 -	5 3-4
Mean at all ages		-	-	1 in 7 4-5

“According to Dr. Marcet, the mortality in the Norwich Hospital for the last forty years has been :

Before puberty	-	-	1 in 18
After puberty	-	-	1 - 4 3-4
Or <i>generally</i> at all ages	-	-	1 in 11 3-4

“From these data it appears that the mortality from lithotomy has been much less in the Norfolk Infirmary than in either of the others, particularly in the Bristol Infirmary. It also appears, from the Norfolk table, that the *general* risk is less in children than in adults, in the proportion of about four to one; but on the other hand, from the Bristol table, the chances seem nearly equal. These differences are at present inexplicable; but, I think, from the greater number of cases occurring in the Norfolk Hospital, and other circumstances, that the data furnished by that Hospital present the most accurate estimate of the relative mortality before and after puberty, from the operation of lithotomy. If we take the mean of all these data, we shall probably approach very nearly the ratio of mortality, as it occurs from lithotomy, at all ages, over all the whole kingdom :

Mean at all ages, in the	}	-	1 in 4 1-4
Bristol Infirmary		-	1 - 7 4-5
Do. in the Leeds		-	1 - 11 3-8
Do. in the Norwich	-	-	1 - 11 3-8
Mean ratio of mortality	-	-	1 in 7 3-4 very nearly.

“We come now, in the last place, to make a few remarks upon the circumstances which ought to be taken into account, in determining our opinion with respect to the propriety or necessity of the operation of lithotomy.

“1. The operation of lithotomy should in general be performed either immediately or as soon as possible, *a.* in all cases of calculus occurring before puberty, of whatever species they may be; and, *b.* whenever the phosphatic diathesis is distinctly ascertained to be present, or even when the urine abounds with pale coloured lithate of ammonia.

“*a.* Whenever a calculus, no matter of what species, is ascertained to exist in the bladder before puberty, there can, I think, in general, be but one opinion respecting the propriety of removing it. The reasons are so obvious, that they scarcely need to be stated; it will be sufficient to remark, that a long series of inevitable suffering will be thus prevented, the risk of a fatal result diminished, and the chance of a perfect cure rendered greater than in a more advanced period of life. In general it will be better that the operation should be performed immediately; but if the lithic diathesis be steadily present, if the state of the general health be good, and if the sufferings in consequence be moderate, the operation may be delayed till towards the age of puberty, as, from the favourable changes which commonly take place at this period, there will be less risk of the disease returning: but, if the general health appears to have given way, and the patient suffers a great deal of pain and irritation, as is most frequently the case, delays will be exceedingly dangerous. *b.* As to the second point, I give it as my decided opinion, that in all cases where the phosphatic diathesis is fairly established, the operation is the only alternative, and the sooner the better. This opinion is founded on the facts sufficiently, I presume, established by the data brought forward in a preceding part of this volume, from which it appears that this diathesis uniformly *succeeds* to all the others; that it never changes when a calculus exists in the bladder, so as to leave room to hope for a better; consequently that it is the last and worst stage of the disease, and will certainly sooner or later terminate the wretched existence of the patient, if permitted to proceed. The only alternative in such cases, then, is evidently, to remove the calculus as

speedily as possible, before the constitution becomes too deeply affected, and particularly before the bladder becomes diseased, which is one of the most certain and distressing consequences of this species of calculus. Nearly the same remarks apply when the urine is loaded with pale coloured lithate of ammonia, or the disease appears to be in a transition state; as, in this case, I doubt very much, from what I have seen, if the lithic diathesis can ever be fairly re-established, at least while a calculus exists in the bladder.

“2. The operation of lithotomy may be frequently postponed under the following circumstances; namely, when the calculus is small or of moderate size, and of the lithic acid species, and when the lithic acid diathesis is steadily present, and particularly if the patient be in the prime of life, the constitution, &c. sound, and the sufferings comparatively moderate; provided always that the patient will conform to the necessary plan of regimen, &c. calculated to remove or diminish the diathesis, and thus to prevent the increase of the calculus.”

With this long extract we close our analysis of the very valuable book before us. In the present edition a great mass of materials are added by the American editor; and although some of the matter thus added, had, we think, better been left out, we cannot hesitate to say that the work is in the main rendered more valuable by the accessions it has received in this edition.

ART. III.—*An Essay on the Application of the Lunar Caustic, in the Cure of certain Wounds and Ulcers.*
By JOHN HIGGINBOTTOM, of Nottingham, Member of the Royal College of Surgeons of London. Octavo, pp. 148. London, 1826.

WE have long been in the habit of applying lunar caustic to abrasions of the skin, and to punctured and other slight

wounds, as well as to almost every variety of superficial ulcers; and the benefits which we have derived from this practice have been so manifest, that some of our patients have taken the remedy into their own hands, and are now employing it with hardly any limit or discretion. Until the appearance of the little volume before us, however, we had never thought of investigating this subject so closely as to enable ourselves to explain the exact mode of operation, nor the causes of success and failure which result from the application under different circumstances and on different individuals. We had contented ourselves with the remark, that the action of lunar caustic upon exposed surfaces diminishes their irritability, and of course also their liability to the development of inflammation. Whether or not this effect results from any direct influence of the remedy on the vital properties, or whether it depends altogether on the exclusion of air and other foreign agents from the cellular tissue of the injured part by means of the artificial scab which it forms, we do not even now think it necessary to inquire. Our author has entered so fully into the investigation of this subject, and has given so clear and satisfactory a detail of the results of his observations, that we shall be able to obtain all the necessary information by analysing the contents of his book.

From the manner in which most small wounds and ulcers are disposed to heal by scabbing, Mr. Higginbottom was first led to employ the caustic in similar cases; and our readers will probably suppose that the practice recommended by him, is productive of the same advantages that result from scabbing. But he claims the credit of a great superiority for the caustic, especially when it produces what he calls an adherent eschar, as will be seen in the sequel. The scab is generally irritable and painful, being surrounded by a ring of inflammation. Pus is also very apt to collect below it, and protract the healing process. On the other hand the cauterized surface is totally free from pain and inflammation, provided it prove adherent; and as it is gradually detached, it exposes

the surface underneath in a state of complete cicatrization. The success of the method of healing by eschar is infinitely more certain as well as more speedy than that by scabbing. It also saves the patient much pain and inconvenience, and renders the repeated application of dressings and ointments unnecessary. Its utility will prove extremely great, therefore, when the time of the poor, the expense of an establishment, and the labours of the surgeon as well as the sufferings of the patient require to be considered; and it will, he imagines, be found of no little advantage in all these respects in many cases which are incident to the soldier and the sailor.

Our author considers the subject under the three following heads:—1st, the *adherent eschar*; 2d, the *unadherent eschar*; and 3d, the *treatment by eschar and poultice*.

The adherent eschar will hardly require a definition, inasmuch as its very name indicates its nature. To produce it the lunar caustic should be lightly applied over the surface of a small wound or ulcer, by means of which a white film is first produced, which soon assumes a darker colour, and afterwards becomes perfectly black, from the influence of the light and atmosphere. At the same time the eschar gradually becomes harder, until finally it resembles a bit of court-plaster; and in the course of a few days it becomes corrugated, and begins to detach itself from the edges, leaving the surface underneath completely cicatrized.

To ensure the formation of this kind of eschar it is not only necessary that the caustic should be applied over the whole surface, but it should be extended also beyond the edges of the wound upon the surrounding skin. The eschar contracts when it begins to dry, and may leave a space between its edges and the adjacent skin, open to the contact of the air unless this precaution be observed.

At the same time great care must be taken not to apply the caustic too freely, lest the surrounding skin be vesicated and inflamed. If every part be touched a slight application of the caustic is generally sufficient.

To show the importance of avoiding all such circumstances as may detach the edge of an eschar, he asserts, as the result of all his experience, that in every instance in which the eschar remains adherent from the first application, the wound or ulcer over which it is formed, invariably heals. He accordingly recommends that as fast as the eschar separates from the healed edges of the sore, it should be carefully removed by a pair of scissors.

“To the surface of the wound the eschar supplies a complete protection and defence, and allows the healing process to go on underneath uninterruptedly and undisturbed. It renders all applications, such as plasters, totally unnecessary, as well as the repeated dressings to which recourse is usually had in such cases; and it at once removes the soreness necessarily attendant on an ulcerated surface being exposed to the open air. In many cases too, in which the patients are usually rendered incapable of following their wonted avocations, this mode of treatment saves them from an inconvenience, which is, to some, of no trifling nature.

“It has been already stated how important it is that the eschar should be preserved adherent. To secure this still more effectually, I have found it of great utility to protect it by a portion of gold-beater’s skin. The skin surrounding the wound is simply moistened with a drop of water, and the gold-beater’s skin is then to be applied over it and over the eschar, to which it soon adheres firmly, but from which it may be removed at any time, by again moistening it for a moment with water; the same bit of gold-beater’s skin admits of being again and again re-applied in the same manner.

“The other circumstances which render the eschar unadherent will be mentioned hereafter. In the mean time the fact stated will sufficiently establish the propriety of treating distinctly of the adherent eschar.

“I now proceed to mention some other effects of the application of the caustic. The first is that, in cases in which there would be much and long continued irritability and pain, as in superficial wounds along the shin, all this suffering, and its consequences in

disabling the patient, are completely avoided. A blush of inflammation forms around the eschar, but this gradually subsides without any disagreeable consequences, and the inflammation which would otherwise have been set up, is entirely prevented by the due formation of the eschar.

If inflammation be previously established, it is increased, at first, by the application of the caustic. But if this inflammation be not severe, and if the eschar remain adherent, all inflammation, both that induced by the application of the caustic, and that existing previously, entirely subsides. When the previous inflammation round the ulcer is considerable, however, the application of the caustic would induce vesication, and it should in such a case, of course be avoided, and another mode of treatment to be described hereafter must be adopted."

The *unadherent eschar* is produced, or, in other words, the eschar is prevented from adhering to the subjacent surface, by the formation of pus or of a scab underneath.

"If the eschar be unadherent by subjacent pus, it may be ascertained in the space of from twelve to twenty-four hours; the centre is generally observed to be raised, and to yield to the pressure of a probe; sometimes the subjacent fluid has partly escaped by an opening at the side of the eschar.

"When a scab forms underneath the eschar, which does not happen except the fluid has been allowed to remain too long under the eschar without being evacuated, there are pain and some inflammation, the eschar does not separate, but remains long over the sore, and there is no appearance of healing.

"When it is ascertained that there is fluid underneath the eschar, a slight puncture is to be made by the point of a penknife, the fluid is to be gently pressed out, and the caustic is then to be applied to the orifice thus made. The same plan is to be adopted if the fluid ooze out at the edge of the eschar; it is to be fully evacuated by pressure, and the orifice is to be touched with the caustic. The healing process goes on best, however, when the orifice is in the centre of the eschar. After this treatment the eschar occasionally remains adherent, but more frequently the fluid requires to be evacuated repeatedly, and this

should be done every twelve hours, or once a day, according to the quantity of fluid formed, taking care that the eschar be not needlessly separated by allowing the fluid to accumulate underneath. If, from accident, the eschar is separated before the sore be healed, I would re-apply the caustic. At length the eschar becomes adherent, and in due time begins to peel off, leaving the surface healed.

“In every case in which the eschar does not separate favourably, I begin to suspect the formation of a scab underneath, in which case the whole must be removed by the application of a cold poultice for two or three days; this has not only the effect of removing the eschar, but of allaying any inflammation or irritation; afterwards the caustic must be re-applied as before.

“The gold-beater’s skin is more useful as a protection to the unadherent than to the adherent eschar, as the former would be more liable to be torn off by accident than the latter. The gold-beater’s skin must be removed in the manner already described, whenever the subjacent fluid is to be evacuated, and must be re-applied after touching the orifice with caustic.

“The pain experienced on the application of the caustic is greater or less according to the sensibility and size of the wound. In small wounds it is trifling, and of short duration; it is more severe in recent wounds than in ulcers: it soon subsides in every case, and then the patient enjoys greater ease than would be experienced under any other mode of treatment. Little or no pain is caused on applying the caustic after evacuating the subjacent fluid of an unadherent eschar. Altogether the pain inflicted by the caustic is far less than is generally imagined, and forms scarcely an obstacle to its employment.

“It may be proper, in this place, to notice such circumstances as render the employment of the caustic improper or inefficient. It is improper to employ the caustic when the ulcer is too large to admit of the formation of a complete eschar; or when it is so situated as to render it impossible that the eschar should remain undisturbed, as between the toes, unless, indeed, the patient be confined to his bed;—or in cases attended by much inflammation, or by much œdema.”

Of the treatment by *eschar and poultice* we have had no experience; and the suggestion of this plan is entirely new to us. The following extract contains the views of our author upon this head :

“ In many cases in which it is impossible to adopt either the mode of treatment by the adherent or the unadherent eschar, it is of great utility to apply the caustic first, and then a cold poultice made without lard or oil : this plan is particularly useful in cases of punctured wounds attended by much pain and swelling, and in cases of recently opened abscesses. By this application the pain and swelling are much subdued, and a free issue is secured for the secreted fluid ; and in no case have I seen the original inflammation increased by it.

“ It is generally necessary to repeat the application of the caustic every second or third day, or every day if the inflammation and swelling of the part be considerable, and the cold poultice may be renewed about every eight hours. At length, however, the inflammation having subsided, the attempt may be made to form an adherent eschar.

“ I have seen many cases in which, by this mode of treatment, much suffering and perhaps the loss of some of the smaller joints have been prevented, particularly cases of deep seated inflammation of the fingers, which, having been neglected, have issued in severe inflammation, abscess, and terrible fungous growths. In these cases it is not only necessary to apply the caustic to the surface of the sore, but in every cavity or orifice which may be formed by the disease.”

In his chapter “ on the application of these modes of treatment to particular cases,” we find the following subjects considered at some length—punctures and wounds received during dissection,—bites of animals, &c.—bruised wounds,—ulcers,—and some anomalous cases of local diseases. We will extract the most important observations under these different heads, without taking particular notice of the numerous details of cases by which he has both fortified his opinions and increased the bulk of the volume.

“*Of Punctures, &c.*—In cases of recent punctured wounds, the orifice and surrounding skin should be moistened with a drop of water; the caustic should then be applied within the puncture until a little pain be felt, and then over the surrounding skin, and the eschar must be allowed to dry. In this manner it is astonishing how completely the terrible effects of a punctured wound are prevented; the eschar usually remains adherent, and the case requires no further attention.

“At a later period after the accident, when the caustic has been neglected, some degree of inflammation is usually present, the orifice is nearly closed with the swelling, and a little pus or fluid is formed within. A slight pressure will evacuate this fluid, the caustic may then be applied within the puncture, and over the surrounding skin, beyond the inflammation, and must be allowed to dry. In this manner we frequently succeed in forming an adherent eschar, and all inflammation subsides. Any slight vesication which may be raised around punctured wounds, is not of the same consequence as when an adherent eschar is wished to be formed over a sore or ulcer; one or more small punctures may be made to evacuate the fluid, and the part may be allowed to dry.

“If there is reason to think that an abscess has actually formed under the puncture to any extent, it must be opened freely by a lancet, and treated with caustic and poultice, keeping the poultice moist and cold with water.

“In cases of puncture where the orifice is healed, and where an erysipelatous inflammation is spreading, attended with swelling, I have applied the caustic freely over and beyond the inflamed parts, and I have had the satisfaction to find that the inflammation has been arrested in its progress, and has shortly subsided.

“This mode of treatment is particularly useful in cases of punctured and lacerated wounds from various instruments, such as needles, nails, hooks, bayonets, saws, &c. and in the bites of animals, leech-bites, stings of insects, &c. In considerable lacerations the same objection would exist to this treatment as in large ulcers.

“The dreadful effects of punctures from needles, scratches from
VOL. III.—H

bone, or other injuries received in dissection, are totally prevented by this treatment. I have for the last five years, had frequent opportunities of trying it in these cases, and have the most perfect confidence in its success."

"*On Bruises.*—It has been already observed, that the caustic is an invaluable remedy in cases of bruised wounds of the shin. In these, as in all other cases, the value of this remedy is greatly enhanced by an early application. In bruises on the shin, I have not had a single instance in which I was not enabled to effect a cure by the adherent eschar, if application was made to me early. The difficulty of forming an adherent eschar is always increased by delay; but in these bruises along the shin there is an additional reason for this increased difficulty, arising out of the tendency observed in them, to the formation of a slough.

"In this place I have, indeed, to make an observation of particular interest, both in a pathological and curative point of view; it is, that the formation of this slough has always been prevented by an early application of the caustic, in the cases which have hitherto fallen under my care. This fact may probably admit of explanation in the following manner: the bruise partially destroys the organization of the part, and the subsequent inflammation completing what the injury had partially effected, a loss of vitality takes place, and the slough is formed. The early application of the caustic has already been shown to have the remarkable effect of preventing the inflammation consequent upon certain wounds, and thus the part is suffered to recover from the injury done to its organization, and its vitality is preserved.

"Whether this mode of explaining the fact be correct or no, the fact itself is extremely important, for the formation of a slough, which the early application of the caustic can alone prevent, renders it quite impossible to effect the formation of an adherent eschar.

"When the patient applies too late after the accident to prevent the formation of a slough, we must still treat the case by the caustic. It is to be applied over the bruised and inflamed part. The eschar remains adherent round the part occupied by

the slough, and prevents or moderates the inflammation, and when the slough separates, an eschar is to be formed over the exposed sore.

“In the neglected and severer cases of bruise, attended by much inflammation, it will be found best to treat the part for a day or two by a cold poultice, to give time for the inflammation to subside; otherwise the caustic might induce vesication of the skin, as I have mentioned already, and the eschar could not be adherent.”

“*On Ulcers.*—From the preceding observations, it would naturally be concluded that the lunar caustic would afford a remedy for the treatment of ulcers. This conclusion is perfectly just. Yet there are many circumstances which render the mode of treating ulcers by the caustic, efficacious or the contrary.

“In order that the treatment by eschar may be successful, there must be the following conditions in regard to the ulcer: first, the surface occupied by the ulcer must not be too extensive; secondly, it must not be exposed to much motion or friction; and thirdly, it must not be attended by a profuse discharge: for all these circumstances have a direct effect in preventing the formation of an adherent eschar, or of removing it if formed.

“I observe, therefore, that I have not found the mode of treatment by eschar to succeed in large ulcers of the legs. But in small ulcers, and especially in those irritable and painful little ulcers which are so apt to form about the ankle, and occasionally occur near the tendo achillis, and in which Mr. Baynton’s plan is inadmissible, the caustic is invaluable; in these cases the cold poultice and lotion should precede the application of the caustic, for a few days, that the irritability and inflammation of the sore and surrounding skin may be first subdued; and after the eschar is formed, the part must be kept exposed to the air, and defended from external injury, by enjoining the patient to wear trousers and to be careful not to disturb the eschar.

“The plan of curing ulcers is exactly what has been described in the treatment by the unadherent eschar. For in these cases the eschar is generally unadherent at first. It is necessary therefore in all cases, except those of very small ulcers, to examine

the eschar, making a small puncture or rather smooth incision in its centre, so as to evacuate the subjacent fluid, if there be any, taking great care not to break down or bruise the eschar so as to leave its inferior surface at all ragged. This operation should be repeated daily until the eschar proves to be quite adherent. And if the ulcer be rather large, rest should be enjoined until the adherent eschar be fully and safely formed, and a dose of saline purgative may be interposed. It must also be particularly borne in mind, that the eschar must be constantly defended by the gold-beater's skin, which must be removed and re-applied at each examination.

"I have here spoken of ulcers upon the legs. But the same observations apply to ulcers on other parts of the body, and these are, in general, far more manageable than the former, and do not require the same rest during the unadherent state of the eschar."

Under the head of "anomalous cases," our author has introduced *whitlow*; and we presume our readers will not be unwilling to receive all the information he can throw upon the subject of this painful and too often mismanaged disease. In the first stage of whitlow, he asserts that the inflammation will be checked and suppuration prevented by rubbing the caustic over the surface.

On the same principle, experienced house-wives often prevent the formation of this disease, by immersing the affected finger in hot water or lye, and blisters have also been resorted to with similar good effects.

When suppuration has taken place, Mr. H. recommends to open the whitlow freely, to apply the caustic thoroughly within the cavity, and then to envelop the part with a cold poultice. By this treatment the pain and irritation are almost immediately removed, after the smart of the caustic has subsided. A second application is seldom necessary. In some cases, however, there is an increase of inflammation in a day or two which requires the caustic to be again applied. When

the inflammation has subsided, the loose cuticle may be removed, and the caustic applied to form an adherent eschar.

He recommends to treat fungous ulcers of the navel in infants, by first exciting the granulations to a level with the skin, and then applying the caustic so as to form the adherent eschar. A piece of gold-beater's skin is particularly necessary in this kind of ulcer, to defend the eschar.

An inflammation of the integuments of the fore part of the knee-joint, which occurs in servant women from scouring floors, stairs, &c. and which is extremely troublesome both to the patient and surgeon, is best managed, according to Mr. H. by applying caustic freely over the whole surface, previously moistened with water, and afterwards by the constant application of cold poultices and lotions. In many other cases of inflammation in which a more than usually active local remedy is required, he thinks the same treatment will also prove advantageous.

In some cases of *tinea capitis*, he has completely succeeded by the use of lunar caustic. In other cases he has failed without being able to account for the difference from any peculiarity of appearance or condition of the disease. The same remark is true of herpes and other cutaneous diseases, which have not yet been investigated by our author.

Mr. H. is not disposed, like some authors, to recommend his favourite remedy in all cases. He thinks it altogether inadmissible in cases of burns, of large, of fungous, and of phagedenic ulcers, of extensive lacerations, &c. at the same time he asserts that it will be found that such cases in the course of their treatment by the ordinary measures, not unfrequently become fit cases for the application of the caustic, with the view of more speedily completing the cure.

In incised wounds, except such as are received in dissection, he does not recommend the caustic.

In erysipelas, especially where vesication is produced, the caustic does injury, as in recent burns.

He has always failed in his attempts to heal scrofulous ulcers by the adherent eschar; but would propose the trial with the caustic and poultice.

In the preface, actuated no doubt by a moderate share of enthusiasm, he insinuates that the investigation of this subject has only been commenced, and that at some future day more glorious triumphs will be awarded to this remedy.

“May not the caustic, for instance, be of greater efficacy, because of greater power and of quicker operation than ordinary blisters, in some internal diseases?”

“It is repeatedly stated hereafter, that the application of the lunar caustic is a means, in certain circumstances, of subduing external inflammation. Might it not, on this principle, be of service in the treatment of some of the internal phlegmasiæ?”

“It may be observed, that the lunar caustic may be regarded, almost without further trial, as an effectual preventive of those cases of irritative fever which arise from local injuries, and probably of the effects of poisoned wounds in general. I would not, however, in the latter cases, fail to render ‘sure doubly sure’ by free excision.

“Might not an adherent eschar be easily formed in those cases of compound fracture in which the external wound is of moderate size, so as effectually to exclude the external air and prevent cutaneous inflammation, and, in more respects than one, to reduce the case to the state of a simple fracture? This object, if attained, would be important indeed, and I hope the suggestion will be submitted to the most assiduous and cautious trial.

“I can have no doubt that the use of lunar caustic admits of being still further extended; and, as I intend to pursue the inquiry, I hope at some future period to publish something more worthy of the attention of the medical public. In the mean time, the plans hereafter suggested must not be adopted without that degree of care, attention, and perseverance, which are obviously necessary to render them successful.”

After reading the above extracts, our readers will probably conclude that Mr. H. is disposed to give to this remedy its

full share of importance. As for ourselves, we are by no means desirous of diminishing in any respect the credit with which his zeal would invest the caustic. On the contrary, we have found it so eminently serviceable in various other local affections not mentioned by our author, that we conceive he still has before him a fertile subject for investigation. M.

ART. IV.—*An Inquiry concerning that disturbed state of the vital functions usually denominated Constitutional Irritation.* By BENJAMIN TRAVERS, F. R. S. Senior Surgeon to St. Thomas's Hospital, &c. &c. London, 1826.

WE are happy in having it in our power to present our readers with an analysis of a work of considerable magnitude, from the pen of one already so well and so honourably known to the reading part of the profession. We are gratified, also, that our intelligent author has, in the present instance, proposed as a subject of inquiry, a pathological theme of general interest, it being alike important to the surgeon and physician, to the philosophic inquirer and the practical applicant. Indeed we can scarcely conceive of a subject of investigation better adapted to our present state of physiological knowledge than the present. Our care shall be without perverting the sense of our author, so to condense the work that our readers shall possess, in a small compass, its valuable facts and opinions, for we do not believe that even Mr. Travers, in this *Octavian* age, can write a book which may not be trimmed into smaller compass without the excision of any vital part.

Mr. T. in his preface informs us, that for many years, the subject of the present work has particularly occupied his attention, as one by no means clearly understood. "My object, therefore," says he, "in undertaking this inquiry, was to ascertain with more precision the morbid state indicated by the term constitutional irritation, to investigate the causes most commonly productive of that state, the phenomena by which it is manifested, and the laws by which it is governed ;

and from the comprehensive view thus obtained, to derive, if possible, some permanent pathological characters, which might serve as a guide to more correct notions of its nature, and more scientific principles for its treatment.”

CHAP. I.—*On the influence of constitution in modifying the effects of local injury.*

That principle of health, denominated irritability, is defined to be the susceptibility of appropriate stimulus, which excites every part of a living animal to perform its peculiar function. “This susceptibility,” he observes, “is not confined to any particular form of organization, as nerve, muscle, or blood-vessel. It exists in every organ, simple and compound, but not in equal degrees in all, or even in different parts of the same organ. It is not in the ratio of sensibility, nor vascularity, nor muscularity, nor any particular endowment, but according to the importance of the texture or organ to the functions of life. Thus, muscle retains irritability longer than any other texture, and the heart later than any other muscle.” The sign of irritability is either sensation or motion, or both. Irritability is essential to the function of those organs by which life is maintained and displayed, and therefore indispensable to life.

Mr. Travers, however, is not one of those who believe that irritability is life, or that life results from certain elementary properties bestowed upon the animal tissues, and which are the source of the vital functions, as the physical properties of what we comparatively call dead matter, give rise to physical phenomena. Our author believes that irritability is a property communicated by the living principle, and not itself that principle. His opinion on this subject is expressed in the following passage:

“As an animal does not, at the instant of death, part with its proper heat and electricity, so neither does it yield its irritability derived from the same vital processes. But irritability or susceptibility of impression and action differs from the former in this, that it is a property peculiar to, and only communicated by, the living principle.”

“Of life itself I am satisfied to adopt the words of the most profound, if not the most logical inquirer which our profession has to boast; “Life,” says Mr. Hunter, “is a property (principle) we do not understand, we only see the necessary steps leading towards it.”

We are sorry that on the very threshold we are compelled to differ from our author in regard to this interesting question. The opinion which Mr. Travers offers, concerning the nature of life, will readily be recognized as that which, modified by peculiar modes of expression, but the same in principle, prevailed exclusively from the time of Hippocrates to that of Haller. The Physis of the Greeks, the Archeus of Van Helmont, the Anima of Stahl, and the *materia vitæ diffusa* of Hunter, are essentially the same, viz. an inscrutable immaterial principle, which is the ultimate cause of the whole series of vital phenomena. We are persuaded, however, that the mode of reasoning which thus anticipates the existence of such a principle as the above, is unphilosophical, and by no means analogous to the mode of investigation employed in other departments of natural science. Since the time of Newton, the phenomena of inanimate matter have been ascribed to certain ultimate properties, such as attraction, cohesion, elasticity, &c. &c. nor does any one presume to speculate upon the essential nature of these qualities, nor to resolve them into other or more remote and general causes, unless it be by experimental research. It may yet be ascertained, indeed, that electricity or galvanism bestow these properties, but it would be absurd in the extreme to give a name to an immaterial inconceivable principle, and suppose this to be the source of all the physical phenomena which we observe, and yet we might as well suppose a *vitæ diffusa* in physics as in physiology. This absurdity is illustrated by the manner in which the older philosophers speculated concerning *nature* as an ultimate cause, as that nature abhorred a vacuum, &c. &c. Such conclusions, it is evident, preclude all further inquiry.

The ultimate vital properties, sensibility and contractility, which Haller, Bichat, and especially Lawrence, have ascribed to the living tissues, correspond to the above physical properties; and the term life, if it be not an empty word, signifies the manifestation of vital phenomena. What is a living system but one which feels, which moves, which circulates its blood, which assimilates, which breathes? It may be more simple, indeed, and exhibit nothing but motion and feeling when irritated. Mr. Travers seems to think that the irritability which remains after decapitation, and which is sometimes observed in the heart, when removed from the body, is not life, nor communicated by the living principle; for he supposes the living principle to be a unit; but if so, how is it that some animals may be cut into many parts, and each exist as a distinct animal? Many of the organs are dead indeed, in the more perfect animals, when breathing and circulation have ceased, nor can life exist long in any of the tissues, because it is here more dependant upon a complex organization; but the contraction which takes place in the muscles is certainly not a physical phenomenon, never occurs in dead matter, and must be a result of vital properties; if not, what is it?

In his second section our author treats of morbid irritability. This results from augmentation, diminution, or perversion of this property. "An excess or deficiency of the natural stimuli, or the operation of noxious agents, will convert healthy into morbid irritability; and a natural stimulus applied to an organ already morbidly irritable, becomes an irritant." An irritable mind is one easily excited by joy, fear, &c., an irritable bladder by its contents, an irritable skin by changes of temperature, diet, &c.

Mr. Travers further defines irritability to be either proper or sympathetic. First, as applied to the system. If the body become deranged through the mind, or vice versa, it is sympathetic. If the irritability of either is singly and directly acted upon, it is proper.

Second, as applied to organs. If fear occasion a desire to pass urine, or worms in the alimentary canal produce temporary blindness, it is sympathetic. Says our author, "the sympathies of health and disease are closely interwoven with this property," (a phrase twisted to some obscurity, by the way.) Every sympathetic action pre-supposes a direct one, though the latter may not be obvious. Our author thinks that we are better acquainted with the partial sympathies than with those of the whole with a part. "Sympathies," he says, "are associations founded on a reciprocity of sensations and actions." He makes the same division of sympathy which has been made by others, into direct, circuitous, contiguous, and continuous.

The irritability of disease is subject to no standard, presenting all the fluctuations which can occur betwixt the extreme states of elevation and depression. The sympathies are therefore often exaggerated and capricious, corresponding to new modes and degrees of irritability.

The mind and the body, in disease, generally sympathize with, and reciprocally influence each other.

The author quotes and approves of Mr. Hunter's definition of an irritable habit, which is "an increased disposition to act without the power to act with."

The same principle which renders a part over irritable, renders it over active, and thus the balance of action is disturbed. A weak organ or constitution is easily disturbed, because often excited to too great activity. A morbidly excessive or deficient action, at first occasional, may become habitual. The system of every individual has some part more weak and less strongly fortified against disease than others. In scrofulous habits the absorbent capillary function is below par, the exhalent in the dropsical, &c. &c.

Every practical physician is acquainted with the different degrees of constitutional irritability, and the different degrees of mischief which result from similar injuries. A whitlow,

a bile, or an inflamed gland, in some individuals, is unnoticed, except as a local affection, while in others they produce the most violent symptomatic fever. The author relates the cases of two gentlemen who each received a slight wound upon the shin. Under the same treatment the one recovered in two or three days, while the other was confined for as many weeks, with a painful inflammation of the absorbents of the limb and glands of the groin, and with an ill-conditioned ulcer. Mr. T. infers from this the importance of consulting the constitution of the patient in regard to applications, as leeches, for instance, to an inflamed part, which sometimes produce great irritation. The same thing is true in regard to vesicatories and escharotics. Very various degrees of constitutional excitement are also produced by comparatively unimportant surgical operations, such as implanting teeth, tying hemorrhoids, &c. A great diversity also occurs in the effects of medicine on the system.

To illustrate the influence of an irritable frame of mind in aggravating the effects of local injuries, our author relates several interesting cases. The first is one of a lady who submitted to the removal of a small tumour from the breast. She had been harassed with the most distressing apprehensions, and made preparation for death. She died the day after the operation.

An extraordinary case is also related of a young woman, who was maliciously warned by a gipsy to beware of her first confinement. The circumstances of her labour were natural, but she survived only a few days, and apparently because of the deep impression which the prediction had made upon her mind.

A young woman happily married had become exceedingly anxious with morbid apprehensions in regard to her first confinement. It was found impossible to allay them, and when the period of her delivery arrived she gave birth, after an easy and safe labour, to a still-born and imperfect child,

and she herself survived but a few hours, although on examination by an eminent anatomist, no morbid læsion whatever was discovered.

The apprehension of surgical operations, when the system is enervated, and disturbed by disease and suffering, has in many instances destroyed life, while preparations were making for the operation. The following case is so remarkable and interesting that we give it entire:

“ A man of colour, of middle age, rather above the common stature, robust and apparently in good health, was received into the London Hospital, labouring under a moderate sized aneurism of the femoral artery. An operation was proposed to him, to which he readily assented. On entering the theatre, however, he fainted ; some wine and water was given to him, which he distinctly swallowed, and the operation was proceeded in, the artery exposed and the ligature applied, but not tightened. During the operation it was observed that no pulsation could be felt in the tumour, but this was accounted for by the fainting. Before tightening the ligature, it was suggested by the operator to wait until the pulsation was re-established. Some increased attention was then paid to rouse the downcast energies of the patient, and it was remarked that the syncope had continued an unnatural time. After the attempt had been some time persevered in, a more attentive observation proved that he was quite dead. All the usual restorative means were then tried, but without effect. On dissection both sides of the heart was found empty, and the lungs tinged with blood ; no other particular appearance was observed.”

The same sometimes results from bodily exhaustion, from continued spasm, &c. The author here relates a case in which the patient, having suffered symptoms of hydrophobia for some days, suddenly expired after excision of the bitten part ; also a case by Sir Astley Cooper, in which the patient

having suffered much pain for several days, from a thecal abscess in the finger, suddenly expired on having it laid open.

Mr. T. here takes occasion to remark on different modes of living as sources of morbid irritability. Persons in high health, in whom the nutrient powers are perpetually struggling with a surplus of diet and stimulus, are exceedingly liable to constitutional derangement from local and other injuries, hence the artisans of crowded cities are less apt to recover from compound fractures and surgical operations than the more temperate and laborious husbandman. An impure atmosphere, as that of cities, is also a cause which fosters morbid irritability.

In females, the states of pregnancy and lactation give efficacy to morbid causes which disturb the balance of the system. Cases are related illustrating this principle.

A latent disease of a chronic character, as, for instance, of the liver, testicle or kidney, renders the system more susceptible to morbid impressions, and recovery less certain after injuries and operations. A man, who suddenly died after an amputation of the hand, was found on dissection to have tubercles of the lungs in an incipient state.

Gradual reduction of the system by disease or otherwise, is favourable to the result of a capital operation, but it may be lowered so much as to induce other forms of disease, and to exhaust the powers of life.

The effect of injuries, which leave a state of chronic local disease, is to induce inflammatory diseases of other and remote parts, as diseases of the liver and lungs result from injuries of the head.

Continuous inflammation is most frequent in persons who incur injuries and undergo operations in a state of health. Trifling operations under such circumstances have proved fatal, which has induced many practitioners, in such cases, to impose restraint before operations requiring confinement.

CHAP. II.—*On the effects of Local Injury on the Constitution.*

“Irritation is the name given to that state which is produced by an extraordinary excitement of the irritability, either of a part of the system or the whole: irritation is therefore local or constitutional.” The phenomena of irritation belong to the nervous system, as those of inflammation do to the vascular, and like these systems they are related. As the causes and degrees of excitement are various, so are the signs and modes of irritation.

The author first treats of *local irritation*, which is demonstrated by : 1. An alteration in the habitual and proper sensation or action of a part. 2. Pain without other signs of inflammation. A carious tooth sometimes occasions a *tic douloureux* of the dental nerve. Some calculous concretions, which form in the kidney, create severe local pain in those organs without a symptom of inflammation. When irritation is unaccompanied by inflammation, it may be, and often is, remote from the seat of the pain and other signs of disorder by which its existence is known. 3. *Inflammation*.—When local irritation is acute and permanent, inflammation ensues. Local irritation in a high degree may be transferred to the system before inflammation can have occurred, or as a consequence of inflammation.

Local irritation may be said to terminate in resolution in local inflammation, or in constitutional irritation. Of these the last is the most important, and that to which our author particularly directs his attention.

Irritation which from being local has become constitutional is imminently hazardous.

The causes of this form of irritation are : 1. The various forms of injury by mechanical or chemical læsion. 2. Inflammation, the result of local injury. The symptoms which indicate its presence, when unmixed with local or general inflammatory action, differ essentially from such as are set up by inflammation. The nervous system then furnishes the

morbid phenomena. The preternatural actions of the vascular system which generally follow, are proportioned to the strength of the symptoms of irritation.

Local irritation may, by the natural sympathies, compel the system reluctantly to take cognizance of its impression, and when this is the case, general irritation is termed *natural*; but if from a slight and apparently inadequate injury or local irritation of any kind, the system becomes suddenly and spontaneously disturbed, in consequence of the presence of morbid irritability, the irritation is termed *morbid*.

Constitutional irritation is by the author divided into two kinds, *direct* and *reflected*; the first immediately resulting from the local injury alone, the second merely elicited by it from the morbid condition of the system, (by the way we do not see the distinction between this division and the last.) The first is relieved by the removal of the local disease; the second becomes a purely idiopathic disease no longer dependant upon the local affection.

The symptoms characterizing the *direct* kind are, in the nervous system; rigour, delirium, convulsions; coma,—in the vascular, phlegmonous fever, suppurative, ulcerative and gangrenous inflammation.—Those which belong to the *reflected* are, in the nervous system, epilepsy, tetanus in all its modifications and other forms of spasm, mania, &c.—In the vascular system; the fever accompanying scrofulous and carcinomatous inflammation, erysipelas, carbuncle, &c.

The author next considers the influence of contingent circumstances, which are: 1. The texture or organ which is injured. 2. The kind of injury. 3. Its magnitude. 4. The subject of the injury.

It is obvious that the degree of immediate sympathy which the system manifests, must be measured by the degree of vital power and sensibility residing in the injured part.

Thus, an injury of a vascular and nervous part, like the skin, is more readily felt by the system than one of a tendon or cartilage. This, however, is not the criterion, according

to our author, of the degree of general irritation which is to follow, for, in the latter instance, the greatest disturbance finally results, but this, he says, is the result of morbid actions, while the other belongs to the condition of health.

Here it appears to us that our author has already found his distinction not practical. Certainly the symptoms which result from the wound of a tendon or a cartilage, though not so prompt, as necessarily follow and are as natural, as those which more immediately result from a wound of a more nervous and vascular part.

Injuries of the integuments of the head, chest and abdomen, excite severer symptoms of irritation than those of other parts of the common covering of the body or limbs.

Læsions of muscles are severely felt on account of their properties as well as texture. Spasm is often the result, and especially when any detached or extraneous body, as a spicula of bone, acts as an irritant. Tetanus often results from wounds of muscles.

Parts endued with low vital powers, as are the fibrous structures, the tendons, ligaments, fasciæ, &c. when injured, as observed above, create a peculiar train of lingering symptoms.

The adhesive and suppurative inflammation of the medullary membrane and periosteum, resulting from injuries of bones, excites a high degree of constitutional irritation. The injuries of arteries are little felt by the constitution. But veins, because of their approach to the character of fibrous membranes, are susceptible of, and transmit high irritation. The same is true of the absorbents. Nerves, when the subject of injury, occasion serious and alarming symptoms of irritation.

The injuries of organs composed of the primary textures, occasion constitutional irritation proportionate to their importance in the economy.

Much depends also on the nature of the injury; narrow and deep wounds, punctures, &c. are more serious than broad and bold cuts, because they retain the effused fluid, and because

the wounded part is frequently embraced by a tendonous theca, which causes the matter to become diffused, prevents the swelling of the part, and is itself the subject of peculiar irritation. A nerve also may be pricked.

Lacerated and contused wounds, because of the destruction of tone in the part, are, in the skin, attended with erysipelas, in the muscles and tendon, often with tetanus.

The extent of wounds is also an important circumstance. "The magnitude of an injury is felt in two ways; in its immediate and in its secondary effects. Either the system breaks down at once, and the vital functions are staggered by the appalling shock, or, having withstood this, the constitution, with diminished powers, engages in the unequal conflict; erysipelatous or gangrenous inflammation is set up, and it sinks exhausted under the wasting processes which must clear the way for reparation."

Circumstances of age, sex, and condition by which habits are determined, are also to be considered.

A scrofulous diathesis is very often the source of reflected irritation, displayed in the formation of the hectic paroxysm, and in the signs of consentaneous morbid changes in the visceral organs.

CHAP. III.—*Examples of Direct Irritation.*

Causes.—1. Sudden, extreme and unremitting pain, and certain affections of the mind co-operating with bodily disease. 2. Injuries and operations of various kinds. 3. Inflammation, the result of injury, terminating in suppuration or in gangrene. 4. Exhaustion from hemorrhage or colliquative suppuration. 5. Poison; animal, vegetable and mineral.

Bodily pain, when amounting to a certain degree of intensity, is of itself destructive, as exemplified in protracted parturition. The following passage we regard as one of the utmost importance to the general practitioner, and we therefore give it entire:

"There is a case in which, with an unconfined state of the

bowels, abdominal after-pain, aggravated by pressure, augments at no distant period from delivery, to a degree sufficient to induce the belief that puerperal inflammation exists; the pulse is accelerated, and notwithstanding its want of power, and a general expression of feebleness, the practitioner, suspicious of the pain, takes away a full quantity of blood. No satisfactory result is obtained; the pulse and the patient sink together, and a fatal coma succeeds. This is a pain, not of inflammation, but of irritation, and would have a better chance of relief from laudanum than the lancet. A case is quoted from Dr. Merriman's 'Synopsis of the Various Kinds of Difficult Parturition.' "

"Certain forms of mortal injury are productive of sudden excruciating and unremitting pain, such as ruptures of the stomach, gall and urinary bladders. Death ensues in these cases many hours sooner than when the pain is less intense, and before the morbid changes, which take place in consequence of the injury, are so far established as to make it credible that the result is to be ascribed to their influence."

Arsenic and other poisons, taken into the stomach, seem to destroy life by an impression on the nervous system, as indicated by overwhelming pain. The author illustrates the effect of pain on organs remote from its seat by an interesting case. A vigorous young man was thrown into a dungeon at Hayti. Thumb screws were put upon him, and a jug of water placed by his side. The jailer, who came to him occasionally, lifted the pitcher to his mouth, at which times he drank freely; in the intervals his mouth was parched; he was restless, but dozed a little. During forty-eight hours he never felt the least inclination to void either urine or stool. Some hours after the screws had been removed, he passed a moderate quantity of very high coloured urine, after which the secretion gradually returned.

In most instances of death from violent disorganization of texture, little pain is endured, because the shock suspends the sensibility of the system.

Pain, when periodical, as in *tic douloureux*, can be endured for a long time.

The first effect of intense and unremitting pain, is precipitation of vascular action, the pulse becoming tremulous and irregular, the countenance cadaverous, with stupefaction of the senses.

The author here again takes occasion to speak of the influence of mental despondency as auxiliary to that of morbid causes. A case is related of an elderly lady who reluctantly submitted to an operation, being filled with apprehensions with regard to its result, although her fears were apparently unreasonable. After the operation, there occurred continued prostration of strength and spirits, with feeble pulse and irritable stomach, terminating in death.

The exciting passions of anger and joy have been known to exert the same influence.

Previous insanity is also recorded as a circumstance to be taken into consideration, as regards the influence of irritative causes. Cases are related illustrating the principle.

The author next considers the *nature* of injuries and operations as modifying direct irritation, and commences with relating several cases of burns. The remarkable influence of this species of injury on the nervous system is so often exemplified in the practice of almost every physician, that it is unnecessary that we should present them. The symptoms attending were, feeble pulse, surface of the body cold, irritable stomach, coma, and difficult respiration, in fine, a general prostration of the vital powers.

It is generally true, that in injuries of this description, if the patient survives the third day with amendment, he may be regarded as safe, as, at that time, re-action may be considered as established, though in some instances the patient is subsequently destroyed by sphacelus, or exhausted by the drain of a very extensive suppurating surface.

The cases related by the author are such as present the symptoms above described, of primary irritation, amounting to suspension of re-action. This is the broad line of distinction between the cases of death and recovery. The author thinks that this cause of difference is not generally constitution, be-

cause the robust fare no better than the feeble. One cause undoubtedly is the greater susceptibility of irritation in young persons, who are more liable to injuries of this character. Extent and other local circumstances of the injury have an influence, but it is far from being true that the degree of irritation is proportioned to extent or depth of the injury. The situation of the injury is undoubtedly of greater importance,—burns upon the neck, chest, and abdomen, proving oftener fatal by direct irritation. The nature of the texture (the skin) is a circumstance of moment in the solution of the question, for this organ is concerned in common functions with the kidneys and lungs, which by such injuries must be, in part, suddenly interrupted. It is also the principle seat of tangible impressions, and the involuntary sympathies connected with it by the medium of the brain, necessary to the due execution of the vital functions; regulating circulation, respiration, temperature, secretion, are so numerous that the simple arrest of these sympathies would be sufficient to throw the system into a state of universal tumult. But perhaps the instant conversion of natural into morbid sensations, or irritants, may best explain the fatal shock which such accidents communicate to the brain.

In exterior burns, it is remarkable to how late a period the faculties of the mind are preserved, although benumbed, and as if the patient were stunned by a fall. Fulness of the veins of the brain, and effusion beneath the arachnoid, are found after death, but are too frequently seen in other cases of sudden death to be much dwelt upon. The proximate cause of death appears to be a kind of functional concussion of the nervous system.

The author next treats of *fractures, contusions, lacerations, &c.* as sources of direct irritation, and first relates a case of a gun-shot wound as illustrative of his principles.—Symptoms ensued from the injury very similar to those detailed in the foregoing instances of direct irritation, and the patient expired without any re-action having occurred. No

morbid appearances were discovered, except in the wounded part. A very similar case is also related in which the injury was inflicted by the wheel of a wagon, across the leg and thigh.

Operations for recent injuries are a frequent source of direct constitutional irritation, in illustration of which, a case is related of a stout young man, whose hand was literally mashed to pieces in a carding machine. Amputation was performed at the middle of the fore-arm, but with little apparent suffering. Soon after, he was affected with nausea; looseness, with green stools; pulse quick and indistinct; copious, partial, cold perspiration. These symptoms were gradually aggravated till he expired, about forty-eight hours after the accident. Mr. T. alludes to three other operations performed under similar circumstances, the subjects of which did well.

Another case furnished by Mr. Brodie is related, in which a similar train of symptoms ensued.

A case of compound fracture is subjoined as an instance of "prostration with excitement." It was that of a young stout lad of fourteen, whose leg was jammed by a stick of timber. The integuments were separated from the tibia, which was comminuted above the middle; he was pale and sleepy from a free hemorrhage. The leg was amputated an inch below the tubercle. During the operation he was faint, the pulse extremely quick, and sometimes almost imperceptible. Subsequently he became restless, slightly delirious, and affected with nausea, and with convulsive actions of the muscles. Fourteen hours after the operation the pulse was full, and one hundred and twenty in a minute. Three hours after this, the pulse was increasing in fulness and frequency; skin hot and dry, and there occurred about that time an epileptic convulsion. The pulse then became rapid, breathing quick and laborious. No alvine evacuations occurred, although purges and injections had been given. He soon became comatose; pulse one hundred, and soft; skin moist; constitutional disorder increasing. On the third day after the injury, his

bowels were relieved by the medicine given, and he became more quiet, pulse one hundred and ten and soft; skin, hot and dry; face flushed, tongue white. He passed comparatively a good night, and all symptoms improved. No adhesion of the wound took place, but copious fetid suppuration, and several sloughs were separated; still, however, he continued to improve, and finally recovered.

The author next proceeds to illustrate the influence of operations for chronic diseases, in the production of direct constitutional irritation. The first case which he relates is one of lithotomy, on a child three years old. Although the operation was admirably performed, not occupying more than one minute of time, it was soon followed by a chill, and the natural temperature of the surface was not restored. He dozed, was convulsed, and soon died, much to the surprise of the attending surgeons, who attributed his death to fright. Several other cases are related in which the result was the same, the unfavourable symptoms of chilliness, torpor, &c. occurring an hour after the operation. A similar case is also related, in which the patient was rescued from this state of prostration, by administering gin and ether, diluted with barley-water. In some of the cases related, the parents had been in the practice of administering gin for the relief of pain, and the author here takes occasion to deprecate the practice of wholly abstracting accustomed stimuli, on such occasions. "There is no essential difference, or rather there is a close analogy in the symptoms and general state of these cases, and of the subjects of the severest burns and complicated injuries."

In two of the cases related, the patients died in convulsions caused by cerebral irritation. These spasms arise in opposite states of the system,—in the plethoric and the ex-sanguine—in the robust and the debilitated—in congestion and in effusion—in acute inflammation and in destructive ulceration.—In short, there is an active and passive form of convulsions, and upon the proper treatment of the disease, upon which

they are symptomatic attendants, the understanding of this distinction is of the last importance. In one case we look for relief to cordials and tonics, in another to venesection and purgatives.

We next notice the author's observations on *inflammation* following injuries and operations, as a source of direct constitutional irritation. A man forty years of age was admitted into Guy's Hospital, on the morning of Jan. 1st, 1823, for a superficial collection of matter in the palm, with an excessive inflammatory œdema of the whole hand and fore-arm. He stated that he had bruised the back of his hand with an iron hook five days before, and had since poulticed the part. The original wound was now nearly healed. The abscess was freely opened, and it was again poulticed. In the evening three gangrenous vesicles appeared on the back of the hand; the man was in a state of severe irritation, as was indicated by his countenance and manner. During the night all the symptoms of disorder were aggravated; his restlessness became delirium, and on the next day (the seventh from the injury) which closed his existence, the whole arm was found to be in a state of gangrene.

Another case is related, in which a similar train of symptoms resulted from the prick of a pin. Numerous other cases are related, illustrating the same principle, but as they are such as fall under the observation of every surgeon and physician, it is not necessary that we should transcribe them. "The most important practical indications which these cases convey," says the author, "are: 1st, Early and free venesection to the relief of pain; 2d, Early and free openings of abscesses. If these are overlooked, the effective aid of medicine is questionable; if they are fulfilled, it is capable of affording most essential benefit, both in the stage of excitement and collapse."

"The common error is in relying upon topical blood-letting, till general blood-letting is interdicted. Under a prudent restriction, pain may be taken for a director to the use

of the lancet even in incipient gangrene. It is not the process of mortification which destroys life in these cases; it is the irritation of the nervous system by the inflammation, and the acutely agonizing pain which accompanies it."

We give the abstract of a case designed to illustrate the influence of inflammation after operations.

Haggar, a drayman, æt. forty-four, was admitted into St. Thomas's Hospital at seven o'clock in the evening of the 24th of Nov. 1823, with a compound fracture of his left leg, occasioned by the wheel of his dray having passed over the limb about two hours before. Both bones were broken, and the tibia much comminuted. The muscles also were much wounded, and he had bled freely before his admission. He felt considerable pain in his limb; his countenance was pale and anxious; his manner indicative of extreme distress. His pulse ninety-six and full. At half past three the limb was amputated below the knee, a flap being formed of the integument on the outer side of the leg. The patient was very faint during the operation, but recovered on taking a cordial. After he was put to bed the cordial was once or twice repeated, by which his circulation and warmth were restored; forty drops of laudanum were given in an ounce of camphor mixture.

During the first night he slept but little. At six in the morning he was made restless by spasms of the limb; tongue white and dry; respiration oppressed; pulse one hundred and twenty, full and rather hard.

On the 26th he had slept pretty well; the limb was quiet, pulse one hundred and forty-four, full and quick, but softer; respiration freer. No stool since his admission. Ordered a cathartic. On the 27th had slept well till about one o'clock in the morning, when spasms of the limb occurred, which continued till six, succeeded by heat. At ten o'clock he lost a pint of blood from the wound; symptoms all aggravated. Bowels twice opened.

The limb still affected with spasms. He was now ordered

the effervescing draught, with five minims of the tinct. of opium, every six hours, and four ounces of Port wine in sago in the course of the day.

On the 28th symptoms were all aggravated, with a deep and extended discolouration of the thigh. The stump discharged a purulent sanies. Castor, wine and porter were administered. On the 30th, pulse irregular and one hundred and thirty in a minute, patient nearly insensible, countenance death-like. He died at half past six.

In the fourth section of this chapter, the author treats of hemorrhage and colliquative suppuration, as sources of direct constitutional irritation.

“A hemorrhage which does not prove directly fatal, as from a wounded artery, sometimes leaves the patient in a state of exhaustion so great that he is incapable of sustaining the shock of an operation.” A case exemplifying this principle is furnished by the author. The patient received a lacerated wound from the bursting of a gun. A touriquet had been applied, but it having been accidentally loosened a profuse hemorrhage ensued, which produced a collapse. After two hours, however, his pulse rose, beating sixty in a minute, and neither thready nor intermitting as before; his faculties were perfect; his limbs warm and his complexion much recovered. The operation of amputation was performed with but little loss of blood, and little complaint. He swooned, however, immediately after the operation, and although roused for a time, this state recurred at intervals till the evening of the following day, when he expired.

A considerable loss of blood, either during an operation or consequent upon it, is most commonly attended with serious consequences of another kind. It so prostrates the vital powers as to expose the parts to imminent hazard of erysipelas and gangrene. A case is related of an elderly gentleman who was cut for a deep fistula, in which gangrene supervened from this cause, there having been a very considerable loss of blood. A case of hemorrhoids is also mentioned, in which

excision having been performed, with the loss of a good deal of blood, there occurred erysipelatous inflammation of the mucous membrane of the rectum.

“When the system has been rendered irritable, but is recovering, either from hemorrhage, or from an injury, or inflammation unattended by hemorrhage, a secondary hemorrhage, even though it be inconsiderable, often extinguishes life.” “Debility,” says the author, “is the basis of morbid irritation, and those causes of debility which operate with the greatest force, most invariably aggravate the state of irritation.” He thinks it very questionable, however, whether, in cases of this description, stimulants in any considerable quantity is not more injurious than beneficial. *Excitement, when there is no power to act, only exhausts the vital powers.* Hence it has been a good turn of fortune for many persons to have been left for dead on the field of battle. Sleep will restore, where alcohol destroys.

The above remarks are certainly very rational, and highly important as a practical precept. We have no doubt that, not only in cases of the above character, in which exhaustion is induced by hemorrhage, but in many cases of fevers and other affections in which the powers of life are depressed and struggling against disease, which can not be immediately removed, the use of stimuli, as employed by some, is productive of infinite mischief, in exhausting the excitability which nature is husbanding against the crisis of the disease.

A rapid and excessive suppuration is among the causes of direct irritation, mentioned by our author. This may arise from the excess of the secretion alone, or from the situation of the secreted fluid, as when confined within a theca or fascia.

Gurton, a robust man, was admitted into St. Thomas's Hospital, May 30, 1823. He had merely rubbed a piece of skin from the back of his hand, which injury had excited inflammation. Poultices had been applied, and an incision made above the wrist, but matter had not then formed. The arm

was excessively swollen, red, tense, and with vesications on the fore-arm; pulse full and quick; tongue white; bowels confined. Prescribed poppy poultice, a cathartic of calomel and colocynth, and an anodyne to be taken at night. June 1st, a small portion of the integuments above the elbow sphacelating, symptoms improved. On the 2d, erysipelatous inflammation appeared upon the side and upper part of the back. He was now taking a grain of opium once in six hours. A pint of porter was added, to be taken daily. June 4th, a large portion of the integuments of the upper arm sphacelated, pulse quick, skin dry. Treatment, bark, anodyne pills, and Port wine. On the 10th, a fluctuation was felt below the elbow. A puncture was made, and twelve ounces of matter escaped; 13th, discharge copious; 17th, discharge still profuse, but health improved; countenance cheerful; good appetite; rests well. Symptoms improved till the 7th of July, when there occurred loss of appetite; pulse small and frequent; tongue coated; arm looking white and glazed; discharge less and thin. On the 14th, he was in all respects worse; thought to be too feeble to endure an amputation; 16th, died.

Other cases of similar import are also related, and it is remarked by the author, that, at a certain period subsequent to the primary disturbance of the system, all were in a condition of tranquillity approaching to convalescence.

The last class of causes mentioned by the author, as sources of direct constitutional irritation, are poisons, from the animal, vegetable, and mineral kingdoms; principally, however, the first, and especially those communicated by wounds received in dissection.

Our author briefly discusses the question of the absorption into the system of putrid animal matters. Some have asserted that punctures and cuts received in dissection are no more frequently attended with fatal results, than ordinary wounds of the same form, which are followed with malignant symptoms, when there prevails an irritable diathesis favouring such a result. It is now, however, generally conceded that,

although a predisposing morbid irritability may often favour the disease, the train of symptoms which ensue are those of morbid animal poisons introduced into the system. Perhaps it is a sufficient proof of this principle, that in simple punctures, with clean instruments, the mischief which follows is consequent on inflammation; but in the cases under consideration, but very little local inflammation is noticed, and the direct constitutional irritation is first observed. An interesting case is recorded, which rests on the authority of Sir A. Cooper.

“Mr. Elcock, student of anatomy, slightly punctured his finger in opening the body of a hospital patient, recently dead, about twelve o'clock at noon; and in the evening of the same day, finding the wound painful, showed it to Mr. Cooper, by whom he was referred to Dr. Haighton, in whose house Mr. E. at that time resided. During the night the pain increased to extremity, and symptoms of high constitutional irritation presented themselves on the ensuing morning. No trace of inflammation, however, was apparent, beyond a slight redness of the spot at which the wound had been inflicted. In the evening he was visited by Dr. Babington, in conjunction with Dr. Haighton and Mr. Cooper. Still no local change was to be discovered, but the nervous system was agitated in a most violent and alarming degree, the symptoms nearly resembling the universal excitation of hydrophobia; and in this state he expired at three o'clock on Wednesday morning, within the short period of forty hours from the injury.”

The author here takes occasion to class the inflammations of the limbs from injury. They are: 1st, of the absorbents and glands; 2d, of the veins; 3d, of the cellular membrane; 4th, of the thecal of tendons, and fascial muscles. These, however, are liable to become complicated, by the occasional termination of absorbent venous, or thecal inflammation in diffused abscess, or gangrene of the cellular membrane, and the above organs also sometimes partake of the inflammation

of the cellular tissue. Inflammation of the absorbents is at first seldom accompanied by inflammation of the cellular membrane, except of that in which the vessels lies; the swelling is inconsiderable, the blush is confined to the raised, swollen, and cord-like absorbent lines, as is the chief pain. From the wounded finger or hand, a sensation of heavy pulsatile pain shoots upward along the arm, and the absorbents are conspicuous from the base of one or more of the fingers, upon the dorsum of the hand and wrist, along the radial or ulnar side of the fore-arm, to the bend of the elbow, and from thence to the axilla.

The termination of this inflammation, if unreduced, is in circumscribed abscess of the lymphatic glands, and the connecting tissue.

“*Inflammation of the Veins.*—This disease is rare, and generally arises from venesection, viz. by the employment of a foul lancet, or an unfavourable predisposition of the constitution. The moderate swelling, but great tension of the limb, and cordy hardness of the vein traceable towards the axilla—the insupportable pain, sense of weight, and immobility, with a festered or oozing state of the orifice, are local characteristics; but the extreme constitutional excitement, morbid vigilance, mental irritability, and despondency, partaking more of the nervous than the simple inflammatory type, and running rapidly from delirium to exhaustion, is peculiar. The blood drawn is strongly cupped, and buffy. The pulse rapid and stringy, becomes more full and soft after copious depletion, but the pain is only partially relieved. The inflammation is slow in affecting the surrounding texture; it terminates in a free purulent discharge from the ulcerated orifice, and in one or more abscesses, in the course or vicinity of the vessels. The disease, if overcome, leaves a state of extreme debility, and hardness and stiffness of the limb. The diagnosis between this and cellular or fascial inflammation, which much more frequently follows venesection, is not difficult to those who have witnessed both and compared them.”

The next kind is that of the cellular membrane, and first the phlegmonous:

“*Inflammation of the cellular membrane.*—Many diminutive injuries, such as the wound in blood-letting, punctures, cuts, and abrasions of the fingers, exasperated by neglect of ordinary precautions, excessive use of the limb, or casual intemperance, give origin to the local and contiguous inflammation and suppuration of this texture. It is especially frequent in the palm or on the back of the hand, in injuries of the fingers. It is attended with conspicuous but ill-defined swelling, throbbing pain, and more or less sympathetic inflammatory fever. If the distension be not relieved by an early and free opening, and other suitable treatment, the limb partakes of the inflammation, which extends along the fascia and subfascial cellular membrane. Thus, owing to extreme distention, and to that alone, instead of one or two proper, i. e. circumscribed abscesses, the entire limb becomes a diffused abscess, or nest of abscesses, eventually followed by a corresponding loss of substance from sloughing of the spoiled membrane. The sequel involves a two-fold danger; 1st, that of diffused gangrene; 2nd, that of destructive suppuration. See as an example of the first, the case of Mosely, page 146. Of the second, Gurton, page 189.

“Another inflammation from wounds passes over, or very slightly touches, the absorbents and the entire extremity, and shows itself in a slight fulness and tenderness to the touch, of the neck, subclavian, humeral, and pectoral regions. The axilla is generally also a little full and tender. The inflammation spreads backwards over the scapular region, and downwards and backwards by the serratus and latissimus dorsi. Some time subsequent to the feeling of tenderness, an erythematous blush appears, of a pink hue, irregular in its outline, but abruptly defined. If the finger is placed within the disc of colour, it gives acute pain, so that the patient convulsively shrinks, while beyond this, pressure gives no pain. After a day or two, the part loses its vivid efflorescence, and becomes less exquisitely sensible; but the appearance of fulness rather increases, and the sensation to the touch is that of a very obscure or diffused fluctua-

tion, as if the cellular membrane was broken up, a doughy or quaggy feel. If punctured, a serous fluid only escapes. If the patient survives a fortnight, this becomes purulent; in short, it is a diffused cellular suppuration. It should be mentioned, that in some, if not in most cases, the superficial absorbents of the arm are very slightly inflamed for a day or two before the pectoral blush appears; but the inflammation is trifling and evanescent. The pectoral region is often swollen, and the seat of pain for a day or two before it, is reddened, as on the second or third day from the injury. In this variety of inflammation, the wound is sometimes the centre of a vesicle or pustule, sometimes of a cellular abscess, and more frequently is little, if at all, inflamed.

“This is the serous or erythematous inflammation of the cellular tissue—not by continuity, for I have stated that the arm either escapes, or is so slightly and transiently affected as to excite little notice,—but, as I believe, by the specific irritation of a poison conveyed by the wound into the circulation. Whether it passes from the wound by the veins, the deep-seated, or the superficial absorbents, I cannot take upon me to say; but it does not appear by any manifest sign, that, in either case, the vessel is inflamed by its contents. The tendency of this inflammation, in its severest form, is to excite.”

It terminates in, “1st. A serous or lymphatic effusion into the cells of the subcutaneous membrane, and an early disorganization of this texture.

“2ndly. In its milder and less fatal form, a weakly and diffused suppuration throughout the same substance, unprecedented, as in the formation of proper abscess, by any adhesive action.

“The constitution, in the severer form described, is affected in a very peculiar manner and degree; in the milder, it is subjected to an irregular and protracted hectic fever.”

“Phlegmonous inflammation terminating, or, I should rather say, permitted to terminate in erysipelas or gangrene, is a thing totally distinct from erysipelatous or gangrenous inflammation, *sui generis*, as these are also distinct; though erysipelas may, and often does, pass into gangrene. The erysipelatous, more than any other inflammation following injuries, connects itself with peculiar states of constitution, and gives the impression

from the seeming inadequacy of the exciting cause, and the sudden, rapid, and destructive character of the disease, of its originating from some specific irritation. It in fact occurs most frequently in persons of lax fibre, or of broken constitution enfeebled by age or by intemperance."

"*Gangrenous inflammation of the cellular tissue.*—This occurs chiefly as a direct termination of inflammation in the severest and most extensive injuries. I have instanced it under the denomination of 'disorganizing inflammation' in some of the preceding cases of compound fracture. The discoloration and sanio-purulent œdema of the cellular membrane are ushered in by acute pain; the livid cuticle is separated in bladders containing a thin dark sanies; and the surrounding soft parts, without exception of texture, become black, disorganized, and putrescent. With these appearances a rapid and small, or thready pulse, which soon becomes intermittent or faltering, a tongue, mouth, and lips encrusted with a thick brown sordes, a relaxed and sodden skin, hiccough, tremor, and subsultus, a heavy and vacant expression of face, anxiety, low delirium, and stupor—are the constitutional signs in connexion.

"*Inflammation of the fibrous membranes.*—This, the case of acute paronychia, is frequently accompanied with absorbent inflammation, but not invariably, nor is it on this account more serious. Matter is secreted by the inflamed synovial surface of the tendinous sheath, or the particular fascia investing the tendinous extremity of a muscle of the arm or leg: or beneath a ligamentous expansion, as the palmar or plantar aponeurosis. Sometimes the symptoms supervene in a few hours after the injury, sometimes not for days, so that the patient scarcely recognises the injury, usually a small penetrating wound. If the wounded thumb or finger is disfigured by excessive œdema, the symptoms of disturbance are less severe than when with great tension the swelling is inconsiderable, and void of fluctuation, so as to make the existence of matter doubtful. The quantity of pus is so small, and the relief of discharging it so great, as to demonstrate that its situation alone had given rise to the intense pain, and extreme constitutional disorder. Is it owing to the partial escape of matter into the cellular substance, or to the in-

flammation having originally attacked this texture exterior to the theca or fascia, and affected the interior only by sympathetic connexion, that the symptoms are less urgent when the œdema is present? Certain it is that the incision of the theca or fascia is necessary to the relief of the symptoms, and this must not be delayed, even though the external signs are obscure. When but a flake of matter has escaped, nay when blood only has issued, I have often witnessed as complete a subsidence of the pain and alarm of the nervous system, as when it has been discharged in quantity. This looks more like a relief of tension than of distension.

“The inflammation of the general investing fascia of a limb is not attended by any corresponding severity of constitutional suffering, yet it is often considerable. An inflammation following venesection, which continues slowly increasing for a considerable period subsequent to the operation, yet clearly commencing from that time—marked by a stiff and swollen elbow, and an extensively diffused blush over a part of the upper, and the whole fore-arm, attended with exquisite tenderness to the touch, and pain shooting to the points of the fingers—is productive of much constitutional harass, and generally leaves a permanent immobility of the joint.

“The presence of matter beneath the periosteum, when the bone is sound, as when produced by acute periostitis from injury, is capable of producing the most urgent constitutional distress. I have seen it accompanied by fierce delirium, which ended in complete stupor of two days’ continuance, and that in death.”

The author relates numerous and interesting cases of the fatal effects of animal poison introduced into the system by dissection. One of these has already been transcribed by us. It is not necessary that we should occupy our pages with others, as they are of a pretty uniform character, and as the subject has been heretofore noticed in this journal.

Two important inferences drawn from some of the cases related are the following:

“1st. That any local irritation sufficed to produce in any part of the body the characteristic sign of the prevailing morbid action.

“2d. That this was independent both of contiguous and continuous sympathy, and pervaded the whole system without reference to any particular track or channel.”

“Rigor, nausea, and retching, abdominal tension, restlessness, and depression of spirits, with a rapid and feeble pulse, coated tongue, pinched countenance, partial perspirations, and at length, delirium, followed by stupor and laborious breathing, and terminating existence in the space of ten days, are all legitimate signs of high constitutional irritation, peculiar to no individual form of local injury. But when we find, superadded to these, and seeming to hurry on their career, acute pain and swelling, occupying, within a very few hours, that region of the body which connects the trunk with an injured extremity, the supervention of erythema to the extended swelling of the integument, and the subsequent threatening of diffused suppurations—it is impossible to resist the strong evidence of analogy which such symptoms bear to those which attend upon injuries having a similar origin, and upon those only. But the vesicle furnishes at once the most curious and convincing proof of poison. The pustule of small pox, and the vesicle of cow-pox formed upon the wound, are not more conclusive of the inoculation of their fluids respectively than was the vesicle, in this case, of the insertion of its proper virus.”

The author discusses the question, whether any specific contagious disease be capable of being communicated after death, as erysipelas, small-pox, or lues, and decides in the negative, as appears from the following passage:

“Bodies used for dissection are, with a few exceptions, in a morbid condition, and although I have known instances of wounds received in the dissection of poxed and cancerous subjects in the stage of ulceration, I never knew nor heard of a case in which venereal or carcinomatous symptoms succeeded to such casualties. If the simple morbid secretions of living bodies were capable of

acting as poisons, surgeons would be occasionally subject to peculiar diseases from this source, as well as from dissection; and if the morbid poisons were transferable as such from the dead to the living, the fact could not have escaped observation."

On the pathological relation between the cases of simple and poisoned wounds, Mr. T. has the following:

"The occasional approximation of the constitutional symptoms in the two classes of cases, naturally leads to the belief that there is nothing in the nature of the malady which puts it beyond the pale of medical treatment in one case more than in the other. The difference amounts to this, that the poison is in one case the irritant, in the other the inflammation. In either case the local action may constitute so much of the disease as to demand vigilant treatment; but in the former, the disorder arises from the admission of the poison into the circulation, and in most instances the local action is insignificant, except as it demonstrates the existence and activity of the poison. To take up the local disease in this case as especially important, is to begin at the wrong end. The terms 'poison' and 'specific,' have been somehow supposed to convey a mysterious import of incurableness, and we are apt to conclude that our labour is vain, and to yield the contest in despair, when conclusive evidence of absorption is at hand. Nothing can be more contrary to reason than this impression. If a common pathological character, viz. that of over-excitement of the nervous system, be established, the constitutional treatment of the cases will be similar. The difference in rapidity of development, in vehemence of action, must be met by a corresponding activity of treatment. If the pain anticipate other signs of inflammation, if the excitement be so intense, and the depression of the nervous system follow so close upon the stage of excitement, as either to disguise the former, or abridge it of its ordinary limit, we must not suffer ourselves to be betrayed into a hypothetical belief, that the operation of the poison contra-indicates the employment of those measures which have been found efficacious in proportion as they have been early resorted to, in cases to which these

bear a strong and obvious analogy. We know that the effects of powerful poisons, that are not directly subversive of the organization necessary to life, may be overcome, that in many cases in which their agency upon the system has been developed it has been neutralized; that is by the extraordinary operation of common principles that they destroy. There is nothing in the nature of the irritation induced by specific agents, as the saliva of the poisonous snake or the rabid dog, which warrants a belief that it resists the operations of remedies, provided the activity of the poison be not such as cuts off opportunity, by a sudden arrest of the functions of life. It stands, in fact, on the same ground as irritation from other and simple causes, as from mechanical injury. If from the moment of the shock, re-action fail, the injury is in its nature fatal from the complete paralysis of the nervous system; but where this is not the case, as in many instances of direct irritation it is not, and in those of reflected irritation it cannot be, we are as little entitled to conclude that a disease is in its nature incurable, as that it is so, because we are not in possession of a remedy.

“Mr. Brodie, in a beautiful experiment, demonstrated the recoverableness of life from the destructive action of poisons, by the power of maintaining it until the proper effects of the poison ceased; and cases are well authenticated of human recovery from the sedative influence to the last extremity of noxious gases and deleterious substances admitted into the circulation, both by the stomach and the veins. The well known experiment of Bichat, which many years ago, with the rest of his experiments, I repeated, showing the baneful effect of an injection of venous blood into the carotid arteries, and its removal by the injection of arterial even after a repeated injection of the venous, which otherwise proved invariably fatal, affords a striking illustration of the same fact. But the effect of very gentle alteratives, as they might be termed, of the cerebral circulation, to preserve life when trembling in the balance, in the extreme states of excitement and depression, is continually seen in practice.”

Chapters fifth and sixth, the one on the theory of irritation, the other on the pathology and treatment, yet remain, but

we have not room to do them and our readers justice in the present number. We shall therefore resume the subject in our next.

ART. IV.—*A Practical Dissertation on the means of obviating and treating the varieties of Costiveness, which occur at different periods of life, and in cases of predispositions to various constitutional maladies, in peculiar temperaments of Body, in disorders of the Lungs, Stomach, Liver, Rectum, &c. and during Pregnancy, by Medicine, Diet, &c.* By RICHARD REECE, M. D. Fellow of the Royal College of Surgeons, &c. &c. London, 1826.

THE subjects treated of in this work are highly interesting, and deserve well to be made the object of a separate treatise. The sympathetic connexions which subsist between almost every part of the living system and the alimentary canal, are so extensive and intimate that scarcely any deviation from a natural or healthy state can take place in the latter without giving rise to morbid actions in various other parts of the system.

Costiveness,, though not in general an affection which is at once attended by prominent and alarming symptoms, is nevertheless frequently the cause of slow, but serious changes from health to disease—of organic affections—and of incurable general maladies. Even the energies of the mind—the temper and the passions, are powerfully influenced by that condition of the intestinal tube which produces; and those circumstances which attended constipation. The subject; therefore, is one of great importance, and we are glad that our author has given us this opportunity of bringing it before our readers. We cannot, however, bestow very great praise on the author of this work, for the manner and ability with which he has performed his task. We do not like the temper with which he speaks of the sentiments of many of the most eminent practitioners of the day, nor do we think that in relation to his own judgment and abilities, he betrays

that modesty which we usually find connected with true merit.

CHAPTER I. *Of Costiveness.*—The author observes that in all cases of disease attended with a very confined state of the bowels, it is of much importance to ascertain whether the patient is habitually subject to constipation or otherwise. For in persons who are constitutionally subject to a confined state of the bowels, much more debility is produced by the operation of an active cathartic, than in such as have one or two alvine evacuations daily. This fact has been mentioned by other writers, and accords, indeed, fully with our own observations. Although costiveness very frequently produces unpleasant, and often alarming symptoms, yet it does not necessarily constitute a state of disease; for many persons have not more than two or three stools a week, and yet enjoy a good state of health. The injurious consequences of constipation, says the author, are more apt to occur at particular periods of life than at others. In females about the age of fourteen or fifteen, constipation, when it is suffered to continue, is apt to produce retention of the menses, which, in its turn, gives rise to a determination to the lungs, and finally incurable organic disease. Excessive costiveness in females about the period of the cessation of the menses has a tendency, by determining the blood to the brain, to produce apoplexy; or if the determination occurs to the lungs, consumption, or a deposit in the substance of the uterus, which will lay the foundation of the most distressing disease to which the female is liable. Apoplexy is a frequent consequence of a torpid and loaded state of the bowels in persons advanced beyond the fiftieth year of age. At these periods of life, therefore, it is more particularly necessary to keep up a regular action of the bowels. “But this is not solely to be accomplished by purgatives. Remedies that are capable of invigorating the circulation in the abdominal viscera, must be employed along with aperients; such as stimulating stomachic medicines, friction over the bowels, flannel next the skin,

horse exercise, dancing," and such other internal stimulating medicines which increase the irritability of the muscular coat of the intestinal canal; to which may be added electricity and galvanism.

The author observes, not very elegantly, nor we think, very truly, that "the person must be *little better than an idiot* who can contrive, by means of the great variety of aperient articles we possess, to obviate a degree of costiveness which in his constitution is clearly inimical to health." Now we have seen persons who were perfectly *sane*, but who nevertheless did not succeed in their endeavours to obviate an injurious torpor of the bowels by all the articles which they and their advisers could suggest.

CHAPTER II. *Treatment of Constitutional Costiveness.*
In persons from the age of ten to thirty, *powerful* purgatives must be avoided in the removal of constitutional costiveness. This we believe to be a good rule at all periods of life. The means should be mild. Powerful purgatives tend rather to increase than to diminish habitual torpor. In general, the most obstinately costive habit may be overcome by the use of certain articles of diet possessing gently aperient powers; and by avoiding such as have a constipating effect. Ripe fruits, either crude, boiled, or baked,—such as apples, plums, figs, gooseberries, currants, mulberries, are good aperient articles of diet. "The stem of the rhubarb plant, when baked, (without pastry,) is also a good aperient article of diet." To promote the opening effects of these and other articles, from fifteen to twenty grains of carbonate of soda, dissolved in a tumbler of water, should be taken a few hours after a meal.

Green vegetables also, (boiled,) form proper articles of diet for persons of a costive habit. But all jellies, whether animal or vegetable, pastry, mealy potatoes, biscuits, and astringent drinks, such as Port wine, &c. are improper. For common drink, water is the best; cheese-whey will also answer well. The diet should be chiefly vegetable; and when meat is used it ought to be taken "underdone, so as to contain the

red-gravy." The food should be well masticated before it is swallowed. This is an important direction, and ought never to be neglected. Condiments, such as mustard, black-pepper, salt, &c. are useful. *Brown** bread is preferable to the white.

Riding on horseback and walking are useful auxiliaries to diet; but gestation in a coach with easy springs, has an injurious effect.

Along with an appropriate diet, however, there is nothing which contributes more to the restoration of a regular action of the bowels, than a daily attempt, at a particular hour, to evacuate fæces. The patient should persist in these attempts, for at least half an hour at each time; and by persevering in this practice some weeks, the bowels will often be brought to the habit of regular and daily discharges. We have known some patients to continue these periodical efforts for several weeks before the bowels began to act. Soon after breakfast, is, perhaps, the best time to make these efforts.

If the preceding means should not be sufficient to restore due activity to the bowels, recourse must be had to mild aperients. Our author objects to the saline cathartics. They hurry off, he says, the contents of the stomach and small intestines, and do not act sufficiently on the colon; "the conse-

* The author gives the following directions for making this "valuable article of diet." He obtained the receipt from Henry Forbes, Esq.

"To four pounds of the best household flour add two table-spoonsful of yeast, and half a pint of warm water; let them stand two hours in a warm place, about four feet from the fire; then add half a pound of bran and a tea-spoonful of salt, and proceed to make the dough with skim-milk or warm water; then cover it up as before, and let it stand one hour more; then begin to heat the oven, which will require one hour. Make the loaves, and put them into warm dishes, and let them stand twenty minutes before they are put into the oven. This size loaf will require an hour to bake. When taken out, turn the bottom upwards. The following morning it will be fit for use. By means of this bread, it appears, by a communication in the Gazette of Health, Mr. Forbes, who had been subject to obstinate costiveness for many years, brought his bowels into a regular state; and after being a great invalid, became a robust, healthy subject."

quences of which are, when these purgatives are taken immediately after meal, the evacuations contain undigested food, and when taken two hours after a meal, even chyme and chyle, without much *fecal* matter." Another objection to saline purgatives is, says the author, to "reduce the temperature of the stomach and bowels, so as to diminish the transmission of blood through them, and increase its determination to the head." He considers the following purgative as well adapted for the removal of habitual costiveness.

R. Alcaline extract of jalap, 1 drachm,

Oil of caraway, 20 drops,

Mix and divide the mass into twenty pills.

One, two, or three of these pills may be taken every or every other night, "according to their aperient effects; *i. e.* if the bowels have been accustomed to one evacuation in the course of a week, the dose should be regulated so as to produce one every fourth or fifth day; and after this state has continued about three weeks or a month, it should be increased so as to produce an evacuation every third day, and in this manner the person may go on till he has got his bowels into a proper, regular state of one evacuation every or every other day, as he may find best to agree with his constitution.

If with these pills, and a regulated diet, the bowels cannot be brought to act, large but mildly stimulating injections should be forced into the colon. The warm bath, also, will often be found a useful auxiliary; "and the object being to stimulate the intestinal canal, the degree of heat should exceed the temperature of the abdominal viscera, which is from ninety-eight to one hundred." In leucophlegmatic or chlorotic subjects, the temperature of the bath may be gradually increased, while the patient is in it, from ninety-six to one hundred and eight or one hundred and twelve. The latter temperature cannot, however, be employed with safety, by persons of an inflammatory habit.

"If the foregoing treatment should not succeed in conquering the disposition in the intestines to costiveness, we may attribute

its obstinacy to preternatural rigidity of fibre; in which case an anodyne will promote the operation of an aperient medicine, the laxative diet, &c., by diminishing the rigidity of the intestines, &c. For this purpose, four grains of the extract of henbane may be given at bed-time, or twice a-day; and to promote its operation, the warm bath (at a relaxing heat, about 95 to 96,) should be employed three times a-week. The extract of henbane, the tincture of colchicum seeds, and the inspissated juice of the wild cucumber, termed elaterium, are proper antispasmodic purgatives in cases of costiveness, attended with rigidity. Opium, and other vegetable narcotics, are more efficacious in removing preternatural rigidity; but by lessening, also, the power of the muscular coat of the intestine, on which their peristaltic motion depends, they occasion costiveness. In looseness, and even in inflammation of the intestine, opium, by allaying morbid excitement, and diminishing the irritability of the muscular coat, is, when judiciously administered, a most valuable remedy."

But if all the foregoing means should fail to produce the desired effect, one, two, or three of the following pills, says the author, may be administered every or every other day:

R. Croton oil,	10 drops,
Castile soap,	2 scruples.
Alcaline extract of jalap,	1 drachm,
Oil of caraway,	12 drops.

The author has forgot to tell us into how many pills this is to be made. We presume about thirty would be the proper number.

To aloes he objects, on account of its tendency to favour the production of piles. Castor-oil is also objectionable; for unless it be digested in the stomach, he says, "it will become so acrid in the small intestines as to produce liquid motions, which, like those of salts, will pass over hardened fæces in the colon." We doubt the correctness of this observation; we do not believe that the oil will become *acrid* in the small intestines,—the assertion appears to us wholly gratuitous. The author in the next place proceeds to the consideration of the

treatment proper in cases of costiveness depending upon appreciable or manifest causes; such as sedentary habits,—intense application of mind,—debility, &c.

CHAPTER III. *Costiveness of the Sedentary and Studious.*
—in cases of costiveness arising from inactivity of body, or from protracted and intense application of mind, we have, says the author, two indications to fulfil, viz. “to keep up the digestive powers of the stomach, and to increase the peristaltic motion of the intestines.” For the latter purpose, he recommends the following pills:

R. Extract of fumitory—alkaline extract of jalap—and extract of rhubarb, of each one drachm. Mix and divide into 30 pills; two or three of these pills may be taken twice or thrice a-day.

As the disease, however, depends on inactivity of body, regular exercise becomes a *sine que non* in its treatment. Exercise on horseback should be taken every morning.

“The studious should occasionally indulge in amusements of an active kind. The game of billiards will agreeably exercise both the body and mind. The shower-bath, too, is an important auxiliary, and sometimes proves a remedy for costiveness, occasioned by an inactive life, or close engagement of the mind.”

CHAPTER IV. *Costiveness of Elderly People, and from Debility.*—Glysters of the infusion of horse-radish, administered about twice a-week, will frequently produce very good effects in costiveness from debility. Dr. Blount, physician to the Hertford Infirmary, has used the following composition in similar cases, with excellent effect.

R. Gum guaiacum, $\frac{1}{2}$ drachm,
Hepatic aloes, 1 do.
Subcarbonate of iron, 1 scruple,

Mix and divide into thirty pills.

From two to three to be taken twice or thrice a-day, with a glass of chamomile tea. The compound decoction of aloes

is always an excellent remedy in costiveness from debility. The cause of this variety of constipation lies chiefly in the rectum; and hence, aperient medicines taken into the stomach are seldom sufficient to remove the affection without the aid of stimulating clysters. When the patient is subject to piles, however, *stimulating* injections must be cautiously employed. In such cases warm water will answer best.

As a tonic to invigorate the digestive powers of the stomach after the bowels have been sufficiently relieved, our author recommends the following aromatic tincture of bark. This, he says, he has uniformly found not only to act pleasantly on the stomach of debilitated invalids, but to invigorate the system, and bring the whole vital powers into action. "This tincture is made by dissolving the essential salt of bark in the distilled spirit of buchu leaves and Peruvian balsam with ammonia." The dose of this preparation is from two to three tea-spoonsful two or three times a day, in a wine-glass full of water. Galvanism has succeeded in obstinate costiveness from debility. The fluid must be passed through the spinal marrow.

CHAPTER V. *Costiveness of Females at the age of puberty, or during the Retention of the Uterine Secretion.*—In relation to the retention of the menses, the author makes the following judicious observations:

"The period of puberty in females varying from the age of fourteen to eighteen, and in some to twenty-one, the suspension of the uterine secretion even at the age of twenty-two or twenty-four, is not to be considered as a case of *morbid* retention, unless the constitution evidently suffers from want of it. If a female, at the age of from fifteen to twenty-two years, with appearances of maturity of body and mind, becomes affected with irregular circulation of the blood, sometimes taking place in excess to the head, occasioning headach, confusion of mind, depression of spirits, loss of appetite, &c.—or to the lungs, &c. producing difficulty of breathing, cough, palpitation of the heart;—there can be no doubt that the general health is suffering from the uterus not performing its

monthly office, and, if the bowels be in a costive state, that the retention arises from a want of a proper determination of blood to it; and if means be not adopted to invigorate the nerve of the abdominal viscera, so as to promote the circulation through them, and direct it to the uterus, irreparable organic mischief will probably take place either in the chest or brain, a very common sequel in scrofulous subjects."

In cases of this kind the digestive organs are generally disordered, and considerable torpor of the bowels exists. It is of much consequence in such instances, to promote the circulation in the abdominal viscera, and to increase the peristaltic action of the intestines. To accomplish both these purposes, our author recommends the following composition :

R. Extract of fumitory,

Extract of aloes, of each 1 drachm,

Subcarbonate of iron,

Subcarbonate of soda, of each 1 scruple,

Essential oil of savin, 20 drops,

Mix and divide into forty pills.

One, two, or three to be taken two or three times a day, so as to produce one alvine evacuation daily. He speaks well also of *savine* in combination with the compound extract of colocynth and aloes in retention of menses, accompanied with constipation, and a loaded state of the bowels. That, in cases of this kind, these, and similar emmenagogue purgatives may often be very usefully employed, we know from considerable experience.

"If, after improving the general health," says the author, "and keeping up a regular state of the bowels by the pills, the uterus should remain indolent, it will be proper to have recourse to a medicine which will act more immediately on it. With this view, four grains of blue pill may be administered every other night for a fortnight, which very rarely fail to produce the desired effect in the course of a month. If, however, the secretion should not take place in the course of a fortnight

after the blue pills are discontinued, the uterus may be stimulated once a day, by passing through its region a gentle electric shock."

In relation to the injection of spirits of hartshorn, as recommended and practised by M. Lavagna in France, our author observes, that he has "known it to succeed in a few cases of long standing, but that in two cases it excited a considerable degree of inflammation, which extended to the rectum and bladder. Dr. Chesholm, an eminent physician of Canterbury, has employed this remedy, (twenty drops of the spirit of hartshorn in three table-spoonsful of tepid milk) in several obstinate cases of retention of menses, and *in every instance*, he says, with invariable success."

When, notwithstanding our efforts, the uterine secretion is not re-established, it will be useful to imitate nature by taking four or five ounces of blood from a vein in the foot, every five weeks, till the secretion takes place. The use of semicupium, friction over the bowels, riding on horseback, are powerful auxiliaries. Dr. Miller "an eminent German physician," has informed the author, that he has lately administered the tincture of iodine in twenty-five drop doses, twice a day, in retention of menses in scrofulous subjects, with great success.

CHAPTER VI. *Costiveness of Scrofulous subjects.*—Our author is by no means disposed to believe, with Cullen and others, that scrofula is a disease of debility. He infers this, he says, from the fact, that all stimulants are injurious, and that a vegetable is much better than an animal diet. This is not accordant, however, with the experience of others. Dr. Good regards the disease as one of debility, and directs the adoption of a *tonic and stimulating treatment*. Our author states, that he has never known alkaline remedies do any good when an acid did not prevail in the stomach, "or when uric acid did not predominate in the urine, or when the sensible perspiration did not redden litmus paper."

"It appears to us, (says the author,) that scrofula is not pro-

duced by any specific poison or acrimony, but that it is dependant only on original delicate structure and irritability of the whole lymphatic system; and if this idea be correct, the object of practice is not to stimulate the body or any particular system of it, but to keep down irritation in the lymphatic system, and to strengthen it by gentle tonics: and this treatment we have uniformly found beneficial."

Scrofulous patients, observes the author, are very liable to costiveness. It may even be regarded as an exciting cause of scrofulous indurations. *Aperients* are therefore very necessary. It is probably, says he, from neglecting the regular use of mild aperients, in the treatment of this disease, "that remedies which have been highly extolled by *some* surgeons, have failed in the practice of others." He thinks well of the powers of *iodine* in this disease; but if the bowels are not kept in a proper state, "the article is very apt to disorder the stomach and head, and even to excite fever and considerable irritation in the salivary glands."

Jalap, says the author, is the best article for obviating costiveness in scrofulous subjects. His reasons for preferring this substance is, "because it does not disturb either the process of chymification in the stomach, nor of chylicification in the duodenum, nor prevent absorption of the chyle, by hurrying it through the small intestines."

The alkaline extract, he says, is the best preparation of the whole; and this may be advantageously given in conjunction with the dried carbonate of soda and an aromatic. Iodine is the only constitutional remedy upon which any dependance can be placed. From twenty to thirty drops of the tincture of this substance, taken two or three times a day, is perhaps the best mode of using it. In cases attended with considerable debility, a decoction of the bark, with "marsh-mallow root or coltsfoot," may be given along with the iodine. Mercury in small doses, frequently proves beneficial; it must not, however, be given to the extent of exciting mercurial fever, or affecting the gums. The corrosive sublimate in very small

doses, is the best mercurial preparation in this disease. As a topical application, the author recommends the following embrocation:

R. Iodine,	20 grains,
Rectified oil of amber,	4 drachms,
Rectified spirits,	2 ounces,—Mix.

Sea-air and sea-bathing are powerful auxiliaries to medicine and diet in the treatment of scrofula.

CHAPTER VII. *Costiveness of Hysterical subjects.*—Costiveness having a particular tendency to determine the circulation to the head, never fails, when it exists, to increase the complaints of hysterical subjects. Aperient medicines are, therefore, of very considerable importance in the treatment of this affection.

“When hysteric fits are occasioned by painful menstruation, says the author, the alkaline tincture of colchicum, twice or thrice a day, with an aromatic aperient and camphorated julap, according to the state of the bowels, is an excellent remedy, as the following draught.”

“Take of the ammoniated tincture of colchicum seeds, from two to four scruples; foetid spirit of ammonia, forty drops; compound decoction of aloes, one ounce. Mix. To be taken two or three times a day.”

★CHAPTER VIII. *Costiveness of Gouty subjects.*—Gouty invalids are seldom affected with constipation. When the bowels do become torpid and loaded with fæces, the general health, “particularly the head and nervous system, are always much disturbed.”

The purgatives for gouty subjects, says the author, should be of an active aromatic character. “The saline aperient mineral waters, sulphur, magnesia, castor oil, Epsom and Glauber’s salts, and other supposed *mild* and *cooling* aperients, are apt to disorder the stomach and small intestines,—to interrupt the process of digestion, so as to reduce the vital powers of the system.” Active and aromatic purges rouse the vital

powers, excite the abdominal circulation, and prove cordial to the stomach.

The author regards *calomel* and *aloes* as very objectionable aperients in gouty subjects; and he accordingly condemns the compound colocynth pill, so much recommended by Scudamore and others.

He speaks highly of the good effects of the following pills:

R. Extract of elaterium,	10 grains,
Cathartic extract,	2 drachms,
Resin of jalap, Castile soap, of each	1 drachm,
Mix and divide the mass into fifty pills.	

The dose is from two to three pills occasionally. Dr. Bethel, "an experienced and scientific physician of Brentford," states that he has found these pills to allay gouty and inflammatory excitement more effectually than colchicum, or any other cathartic or sedative medicine, and, unlike colchicum, to improve the general health; and our author observes, that he has often prescribed these pills in cases of gout and rheumatism, and that their effects generally confirmed the high character given them by Dr. Bethel.

It is improper, however, to employ *active* purgatives frequently. "If employed oftener than twice a-week, for a longer period than a month, they may, and probably will, produce mischief in some part of the intestinal canal, most likely in the colon or rectum." But in cases of torpor of the intestinal tube, it will be necessary to keep up its peristaltic action by the daily use of a *small* dose of some active aperient medicine.

CHAPTER IX. *Costiveness of Rheumatic subjects.*—We pass over this chapter altogether, as presenting nothing worthy of any particular attention. In the 10th chapter, the author introduces some observations on the "costiveness of plethoric subjects predisposed to apoplexy." That costiveness, in habits of this kind, is attended with additional danger, is too obvious to require any illustration. It tends very powerfully to increase the determination of blood to the brain, and ought to be carefully guarded against in persons predisposed to apoplexy and other cerebral affections. Our author does not approve of

the employment of the aperient neutral salts for the prevention or removal of costiveness in plethoric habits. They reduce the temperature, he says, of the abdomen, and diminish the vigour of the circulation in the portal circle. This we conceive to be perfectly gratuitous. We would always prefer these aperients in cases of this kind, and for the very reason too that the author condemns them; namely, because they are of a refrigerant character. We have no idea of "aromatic pills," in plethoric subjects; nor do we in the least dread the cooling effects of saline purgatives.

Giddiness, says the author, is not, as is generally believed, an indication of cerebral compression. It is a symptom both of plenitude and depletion. It is not, however, always easy to ascertain which of these two conditions of the vessels of the brain is present. The late Dr. Baillie states, that he has often found it difficult to determine the cause of giddiness. When he found himself in doubts, on this point, he ordered the loss of six or eight ounces of blood, by cupping, as a test. If no relief followed this abstraction of blood, and particularly if the symptoms became aggravated, he recommended nervous stomachic medicine.

"In general, we may judge of the state of the blood-vessels of the brain by the appearance of the eyes, particularly if the vessels of the external tunic be considerably distended: this, however, does not afford a certain indication; but, when this appearance of the giddiness is increased by positions of the body that favour the afflux of blood to the head, as stooping, looking upwards, lying down, &c., there can be little doubt of the complaint being congestion of the vessels of the head. We have known patients who had scarcely been free for one month from attacks of giddiness for fifty years, which were sometimes attended with a degree of loss of sense and motion, nearly approaching to apoplexy, but who always experienced an aggravation of the complaint from bleeding. They all died at an advanced age of diseased bowels. Flatulence is a common cause of giddiness, probably by distending the stomach and bowels, so as to compress

the vessels of the belly, and check the return of blood from the head."

The author thinks it strange that those medicines which increase the urinary secretion, should be so much neglected as a means of unloading the sanguiferous system. He very properly regards diuretics as important additions to aperient remedies in cases of plethora, and particularly in cases where a tendency to cephalic congestion exists.

"Long experience," he says, "has satisfied me, that in cases of plethora, it is nearly of as much importance to attend to the secretion of the kidneys as to the state of the bowels: and that plenitude of the sanguiferous system is more frequently the consequence of sluggishness of the kidneys than of the intestinal canal. An asthmatic fit is so generally preceded by a paucity of urine, that all asthmatics are satisfied of the importance of keeping up the action of the kidneys."

CHAPTER XI. *Costiveness attendant on different varieties of Palsy.*—CHAPTER XII. *Costiveness attendant on Piles.*—

Costiveness is generally the principal cause of piles, and hence laxatives have always been resorted to as the most efficacious means both for the prevention and cure of this painful affection. In exhibiting purgatives in this disease, it is particularly of consequence not to employ such articles of this class, as have a tendency to irritate the lower portion of the bowels. The author recommends the following pills:

R. Alkaline extract of jalap, 1 drachm; purified pitch, half a drachm. Mix and divide into 24 pills; two or three are to be taken once or twice a-day.

Injections of thin gruel or cold water are very useful applications in piles attended with much irritation of the rectum and colon.

This practice, however, is hazardous;—it is liable, says the author, to produce a sudden determination to the head; more

especially in persons of a full habit, and of an apoplectic make. Cold water is moreover apt to excite colicky pains.

As an external application, he recommends the following ointment :

R. Calomel,	1 drachm,
Spermaceti ointment,	1 ounce,
Flowers of zinc,	$\frac{1}{2}$ a drachm,

Mix well together.

“When the irritation extends up the rectum, (says the author,) the soft rectum bougie, besmeared with this ointment, applied for a few minutes every night and morning, when reclining in bed, generally removes the disease in a few days, and will effectually prevent the structural mischief.” When the parts are disposed to stricture, or structural mischief, two drachms of the ointment of belladonna may be substituted for the flowers of zinc. If the external skin be excoriated, which is generally attended with an itching pain, and an exudation of serum, some mild astringent lotion may be applied, or the following ointment :

R. Citron ointment,	6 drachms,
Barbadoes tar,	$\frac{1}{2}$ a drachm.—Mix.

CHAPTER XIII. *Costiveness attendant on Jaundice, &c.*

CHAPTER XIV. *Costiveness attendant on Diseased Liver.*—

This is a curious chapter. The author vituperates the whole medical profession for ascribing too much pathological importance to the liver. The liver, he says, is every thing with most of the modern *magnates* of our profession ; “and the dentists, that class of physicians vulgarly, but not unaptly called *mad* doctors, undertakers, and proprietors of mad-houses, and anti-bilious nostrums, have had no reason to condemn the theory.” The liver, according to our author, is not so important but that it may be spared from the system. Brutes, he says, have done well, after having lost their livers ; “and Europeans residing in tropical climates, have enjoyed good health after it had been nearly destroyed by suppuration.” The bile, according to the author, has nothing to do

with the production of chyle. This may be so; the experiments of Fordyce countenance the opinion, notwithstanding the contrary tendency of those of Brodie. Neither does our author believe that the bile is "the natural cathartic of the intestines." It is much too bland, he says, to perform this office. He has known, too, the passage of the bile completely obstructed, while, notwithstanding, the bowels were relieved regularly every day.

"When considerable irritation exists in the liver or biliary ducts, from a calculus lodged in the principal duct, the bowels are generally constipated; but this is often the case when another organ, either of the chest or belly, is affected with an irritative disease, in consequence of the determination of nervous fluid and blood to the part. That an excrementitious discharge into the intestinal canal may tend to increase the peristaltic motion of the intestines, is, however, not very improbable."

He thinks that the use of the bile in the duodenum, is, "that it may mix with the residue of the chyme after the formation of the chyle, to render it offensive to the mouths of the absorbents, and thereby prevent its being conveyed to the mass of the blood."

"With respect to the office of the colon, which we have stated to co-operate with the lungs, liver, &c. in separating impurities from the blood, Mr. Abernethy observes, the *residue* of the alimentary matter, mixed with the bile, passes from the small into the large intestines, and there undergoes a *sudden* change; it acquires a peculiar fœtor, and becomes what we denominate fæces. This change is so sudden that it cannot be ascribed to *spontaneous chemical alterations*, (which would be gradual,) but it must be attributed to some *new animal* agency. If the contents of the small intestines at their termination, and of the large at their commencement, be examined, they will be found *totally* different, even within a line of each other; the former being without fœtor, and the latter being in all respects, what is denominated fæces. Though *chemists*, then, might speak of the

feculent matter of chyle (chyme?) as *fæces*, yet *physiologists* would rather apply that term to the change in the *residue* of the food which takes place in the *large* intestines, and which seems to be effected by the vital powers of those organs. ‘The *fæces*,’ proceeds Mr. Abernethy, ‘quickly suffer chemical decomposition out of the body, although they often remain in the bowels without undergoing the same kind of change. Their chemical decomposition is attended with the sudden formation of ammonia; yet, on examination, when recent, they are found to contain acids which ammonia would neutralize. The inference, therefore,’ says Mr. Abernethy, ‘*naturally* arises that this third process, I mean the *conversion* of the residue of the aliment into *fæces*, may, amongst other purposes, be designed to modify that residue, so as to prevent it from undergoing those *various chemical* changes which may prove stimulating to the containing organs, as well as injurious to the general health.’

“In a perfectly healthy state of the digestive organs, probably *no chemical* decomposition, *even* of the *fæces*, takes place; yet changes happen, in some degree without apparently producing any injurious consequences. To *chemical* changes we may *probably* attribute the extrication of *inflammable* air, and the various and unhealthy odours of the *fæcal* matter which are observable in disordered states of the digestive viscera.

“The alteration in the odour and appearance of the residue of the chyme on entering the colon, is not the consequence of any chemical decomposition, or of ‘the action of some new animal agency,’ but of becoming mixed with the *fæcal* secretion of the internal membrane of the colon; and so far from the refuse of the chyme being suddenly and completely converted into *fæces* on entering the colon, in the contents of the ascending portion of the colon, the residue or rejected part of the chyme with the bile is clearly discoverable from the *true fæcal* secretion of the colon, the former consisting of the refuse of the food, whilst the other is of a thin pulpy consistence; and as the refuse advances into the descending portion of the colon, it becomes more mixed with the true *fæcal* discharge; but even when evacuated, it is still easily distinguished from the *fæcal* secretion of the colon on being mixed with water, or on microscopical inspection. In

cases of fevers, or of organic disease of the gullet, where a patient can swallow nothing in a solid or thick form, it is common to have copious evacuations of fæces, which can consist chiefly of bile and the fæcal secretion of the colon. As another decisive proof of the fæces not being a conversion of the refuse of the food into fæcal matter, either in consequence of chemical decomposition and new combinations, or of a *new animal agency*, we may notice the case of a child, which occurred in the practice of Mr. Hallam, an intelligent and experienced surgeon of Walworth Road. This gentleman delivered a patient of a 'fine muscular, fat, and healthy child, but which had an imperious œsophagus, so that no food ever passed into its stomach. The child lived for *thirteen* days, and was so wasted that its skin hung like a loose garment, and could be folded and lapped over its limbs. At first the child discharged the usual quantity of meconium from the bowels, and afterwards had, during *eight* days, one or two *alvine* evacuations, in quantity, colour, and consistence, not distinguishable from the stools of children who take food in the usual manner. After the eighth day the fæcal discharges became more scanty and less frequent, but they continued to the last."

We intended at first to give a regular analysis of this book; but we find as we proceed, so much common place observation in it, mingled up too with so much crude reasoning and absurd doctrine, that we have it not in our hearts to fill up our pages with the meagre gleanings which might be picked out of the mass of trash of which nearly the whole is composed. It is really astonishing to see how much contemptible stuff is constantly palmed on the public by the ever-industrious book-makers of Europe. Among the many publications which are constantly issuing from the press, there are so few that really deserve serious attention, that it is not a little difficult to keep up the interest of a journal professedly analytical.

ORIGINAL DEPARTMENT.

ART. I.—*Nyctalopia*. Extract of a Letter from T. R. BURDEN, M. D. to B. DELAVAN, M. D. Surgeon in the U. S. Army.

NYCTALOPIA, a disease common to seamen and soldiers in the East and West Indies, and indeed to the natives and visitors of tropical climates, has been known in all ages. In this country it has been supposed to be very rare, I do not recollect having met with any description of it as occurring in the practice of American surgeons, and believe it is generally unknown to the profession in the United States. I am disposed, however, to think that it is not uncommon in the southern sections of the Union; attended with no pain in most instances, and never interfering with the daily occupation of its subjects, persons are not induced to seek surgical aid, and perhaps are sometimes deterred from the dread of an operation which the ignorant think inseparable from the treatment of diseases of the eye.

Whilst attached to the command of Col. Brooke of the fourth U. S. Inf. at Tampa Bay in E. Florida, I met with several cases of nyctalopia. They were the first I had seen, and as is usual with army surgeons at out-posts, I had no surgical works to refer to, and had to depend on my own resources to ascertain the nature and mode of treatment of this imperfect form of amaurosis. The soldiers affected had been stationed at Fort Barrancas, on the western shore of Pensacola Bay, where they were exposed to the reflection of the sun from the white sand which surrounds that fortress.

During the voyage from Pensacola to Tampa, they had all been affected with sea sickness, the inseparable attendant of a storm, without experiencing any change in the diseased vision. They did not apply to me for relief until the troops had encamped, and were engaged in building the cantonment. The appearance of the disease was as follows: During the

day the sight continued unimpaired, but on the approach of night a mist appeared before the eyes, which gradually increased until the patient was totally deprived of sight. He was not sensible of the light of a candle, and that from the bright fires before the tents had no effect on vision. In the morning sight was gradually restored, and he was able to see the most minute objects distinctly and as well as those free from disease. During the day there was no alteration in the natural appearance of the eye, at night the pupil was dilated and motionless. I could not ascertain any intermittent or periodical character in the disease. One soldier was in the hospital with dysentery, which had no effects on the nyctalopia, neither did I perceive that intoxication produced any aggravation of symptoms. The first case I suspected was simulated, as soldiers frequently resort to expedients to escape guard duty, and prefer such diseases as are least likely to be detected by the surgeon. My experience as physician of the Philadelphia prison, had made me acquainted with the mysteries of this class of impostors, and the proper mode of treatment to be adopted with this kind of patients, and suspicion led me in this case to the knowledge of a remedy which has rendered nyctalopia manageable in my hands.

The second was a case in which there could be no motive to deceive, for the man was employed as company clerk, and had no guard duty to perform ; he continued at the writing-table of his own accord during the day, but was unable after night to walk out of his tent without a conductor. He experienced no inconvenience from his occupation.

I had six cases of this disease in the month of March, all of which were cured. I left the post in July, at which time there had been no relapses. Viewing nyctalopia as a debilitated state of the optic nerve produced by the reflection of the sun's rays from a sandy shore, and by a damp situation, I did not recur to general and depleting remedies. The incessant vomiting at sea had made no change, and the dysentery in one case had no effect on the diseased state of the eye.

No alteration in diet was directed, as in army practice; I am convinced that in general, it is, to say the least, unnecessary. I treated it as a local disease; adhesive plaister spread on leather the size of the hand, and sprinkled with tartar emetic, was applied to the back of the neck, the part having been previously bathed with warm vinegar. The second application always removed the disease, and restored the patient to perfect vision.

I have since tried this application in various diseases of the eyes, and having been satisfied with the results, I give it a decided preference to the use of blisters or even setons.

In mania-a-potu, when the tartrite of antimony is used, it seems to produce effects not altogether attributable to its emetic property. Whether externally it possesses any other than an irritating power, I am not prepared to say, it has been, however, so successful in my hands in the imperfect forms of amaurosis, that I hope you will give it a trial.

ART. II.—*Case of a Horned Woman.* Marlborough, Montgomery County, Pennsylvania, 10th July, 1826.

DEAR SIR,

I take the liberty to forward for your perusal the following case of a *horned woman*, hoping that from its very rare occurrence, it may prove not unacceptable. The account may be relied on, as many others besides myself have seen her, and as she resides but five miles distant from this place.

Mrs. B——, aged about seventy years, the wife of a farmer of Bucks County, of a robust constitution, was affected four years ago, with a very troublesome itching over the centre of the parietal bone of the left side. In a short time she perceived a hard tumour of a horny structure occupying the place thus affected, which continued to increase, so that by the end of twelve months, it had attained the length of one inch. Without any considerable pain, it has progressed in its growth, an inch every year, and is at present four inches

in length, and as thick as one's little finger.—It is not attached to the bone, but is evidently an affection of the cuticle; commencing with a granular hour-glass-shaped tumour of three-eighths of an inch in length, from which the horn abruptly rises. After growing straight for one inch and three-quarters, it takes a spiral direction, and has completed nearly a circular turn and a-half horizontally, of about the diameter of a quarter dollar piece. In appearance it so closely resembles the horn of a buck sheep, that was it placed near a real sheep's horn, it would be difficult to distinguish between them. It is of the same colour, a dingy yellow; is as perfectly hard, and has all the rings natural to a horn of that animal, tapering also, as it does, to the end. As it occasions no pain, except when a blow compresses its fleshy base between the horn and the bone.—As it is perfectly concealed by her head dress, and on account of what is of far more moment with her, a superstitious belief that it is a judgment from above, for some of her manifold sins, she resists all persuasion to have it removed.

With sentiments of gratitude,

I am yours, &c.

DR. B. RUSH RHEES.

GEO. R. MORTON.

ART. III.—*Some experiments and remarks on Galvanism.*
By J. GREEN, Prof. Chem. in Jef. Med. College.

The following experiments and observations were made some years since, when the subject to which they relate was in this country comparatively new,—they may perhaps still be interesting to those who are commencing their researches in this important field of chemical philosophy.

The galvanic instrument employed, consisted of two large sheets of copper and zinc, about two and a-half feet wide, and twenty-five feet long, placed one above the other, and then rolled into a concentric coil—the metals being carefully kept asunder by little strips of wood and pieces of cork—the

poles of the battery were about three inches apart, and consisted of little forceps, one soldered to the zinc coil, and the other to the copper coil, which was exterior. The instrument was suspended by a cord, pulley, and weights, over a large tub, containing a very dilute mixture of sulphuric acid and water, for the purpose of exciting the battery, and which could be immersed or withdrawn from the fluid at pleasure. With the above arrangement, the following experiments were made:

Exp. 1st. Decomposition of Water.—This was performed by placing a watch crystal filled with water near the forceps, and then forming a communication between them under the water, by means of two iron wires. Immediately on bringing them into contact, a bright flash was observed, and bubbles of gas were seen at their extremities. This was either occasioned by the combustion of hydrogen, or the de-flagration of the iron.—I expected the decomposition would have taken place when the wires were at a short distance from each other, as in the same experiments with *mechanical* electricity; but there was no visible effect till the instant of contact. By separating and rejoining the wires, the experiment may be repeated two or three times; but afterwards it is necessary to remove the coils from the acidulous fluid, before it will again succeed.

Exp. 2nd. Heating and fusing Metals.—When a polished iron wire is used to connect the poles of the battery, its colour varies according to the heat produced by the galvanic action. As the coils descend into the acidulous fluid, the first colour which appears is a dusky yellow, this soon changes to an iridescent blue; then the wire becomes red hot, and afterwards, if the machine acts with energy, it has a white heat; but if the instrument does not act with sufficient power to produce white heat, the other colours may be observed to the greatest advantage. The different tints of colour noticed in the above experiment, were thought to depend on some change in the arrangement of the metallic particles pro-

duced by the heat, and not on oxidation, as they occur when wires are heated under mercury or oil; but Mr. Stodart has proved in his accurate experiments on tempering steel, that these colours arise from different degrees of oxidation. Between 430 and 450° of Fahrenheit, steel assumes a pale yellow tinge; at 460° the colour is stone yellow; this gradually deepens as the temperature rises—it then passes through brown and purple; at 590° it becomes a uniform deep blue; we can thus judge of the temperature of steel by its colour. If the smallest interruption be made in the wires which connect the poles of this instrument, no heat is produced—some pulverized gunpowder mixed with camphor, was placed between the wires, which were not more than the sixteenth of an inch apart, and iron filings were then sprinkled between the small interruption, but without effect; on *touching* the wires, however, the powder exploded.

Exp. 3d. The effect of the battery on thin Wire.—Iron wire about the sixteenth of an inch in diameter was readily ignited; but when very small wire was used, no ignition took place, and even upon passing three or four folds of this fine wire between the poles of the instrument, not the smallest effect could be discerned. This last fact may perhaps be explained on the principle, that although the quantity of iron to be heated is small, yet the surface exposed to the air is considerable, so that the cooling power of the air has a greater influence than on a single wire of greater diameter. This reason does not, however, apply to the case of the *single* fine wire. That the surrounding air has a great cooling influence on the temperature, has been beautifully illustrated by stretching a wire through a glass vessel over the receiver of an air-pump; on exhausting the air of the vessel, the wire may be ignited by a galvanic battery, but no ignition will take place when the air surrounds the wire. It is a curious fact, that a fine wire which cannot be ignited by a *large* galvanic machine, may very readily be fused by a *small* one. This has been attributed to the different *galvanic intensities* of the two instruments; an

explanation which is, perhaps, as difficult to understand as the fact itself.

Exp. 4th. Ignition commonly begins near one of the Poles.—In burning wire with the instrument above described, the heat or redness usually first made its appearance at one or other of the poles, generally at the position pole. This is analogous to the fusion of wires by mechanical electricity, for we know that if a strong shock from a common electrical battery be sent through a slender piece of metal, the points at which the fluid enters and issues are most likely to be melted. In Mr. Children's experiments with his magnificent battery, which is the most powerful in *colorific effects* that has ever been constructed, most of the wires were instantly heated red hot throughout their length, and the only case of slow fusion mentioned, took place near one of the poles. Positive electricity is supposed to be more active than any other electricity; we might therefore expect that the disengagement of heat produced by electro-chemical action, would first manifest itself at the positive pole of the battery.

Exp. 5th. On the smoke which rises from heated wires.—Before the ignition of metals by the instrument above described, a kind of smoke was always seen rising from them. This apparent smoke is no doubt to be ascribed to an oxide of the metal in the form of a fine powder thrown from it by the violent action of the caloric. The colour of the smoke is different when different metals are used, that from lead was of a light gray colour; from tin, it was white; from iron, brown; and from brass, purple. All these appearances have been observed, when metals have been fused by mechanical electricity.

Directions for Using the Galvanic Battery.—The following directions may be useful to the student.

1st. On plunging the coils of zinc and copper into the exciting acidulous fluid, if the wire does not immediately ignite, they must be instantly withdrawn, and suffered to remain a minute or two in the air, and a new clean wire substituted

for the one between the poles, before they are replunged. This failure in the experiment, perhaps, arises from the previous oxidation of the wire; oxides of metals being non-conductors of electricity.

2d. The wires which connect the poles of the battery should be removed when the instrument is not in use.

3d. The wires should remain in the acidulous fluid as short a time as the experiment will allow, for this is rapidly dissolved by the acid; indeed, with the most skilful management the zinc part of a galvanic battery is soon destroyed.

4th. The lower edges of the coils always become corroded or oxidated first, being the first part immersed, and the last removed from the acid solution; it will therefore be expedient after the instrument has been used for some time to *invert* the zinc coil.

5th. The best proportions for the solvent, or acidulous fluid are, about one part of common sulphuric acid, one of salt, (mur. soda,) and twenty-four of water. When this mixture is newly made, the coils always act with the greatest energy; but after some time, when it becomes neutralized by the zinc, the action is either wholly suspended, or greatly diminished. Thus we see that both the disengagement of heat and electricity bears some proportion to the intensity of chemical combination.

6th. The coils should be washed with water, or suffered to remain in the air after every experiment.

A brief Historical notice of the Instrument.

Dr. Wollaston's pair of small plates appears to be the first instrument of this kind used. It was composed of a small silver thimble without its top, flattened till the opposite sides were about two-tenths of an inch asunder; a little plate of zinc was then slipped in between the sides, and metallic contact prevented by a coat of sealing-wax along the edges. With this little apparatus minute wires were ignited.

The next instrument was the immense battery of Mr. Children, it consisted of twenty pairs of copper and zinc

plates, each six feet long, by two feet eight inches broad; these were connected by leaden strips; they were suspended from a beam of wood, and having counterpoises, were easily raised or let down into the exciting liquids. The power of this battery was prodigious, it ignited six feet in length of thick platinum wire, through its whole length.

The third instrument is by Professor Hare, of the University of Pennsylvania. Dr. Ure, in his Dictionary of Chemistry, speaking of this instrument, observes, "Dr. Hare, of Philadelphia, has lately contrived an ingenious modification of Dr. Wollaston's single igniting pair, which, from its great power of exciting heat, and its small electric intensity, he has styled a calorimeter." As Dr. Hare's battery is so generally known, a description of it will be unnecessary.

The fourth instrument is the one I possess,* this was constructed by Mr. Lukens and Dr. Patterson; of this, Dr. Cooper of Columbia College, S. C. has made the following alteration. Nine spirals of zinc and copper, arranged in the manner before described, were connected together, and plunged into nine glass tumblers, five inches deep, and four in diameter; the spirals exactly filling the tumblers, uprights and pullies were so adjusted that the spirals could be immersed or withdrawn from the tumblers which contained the acid, simultaneously. This last instrument, and some other modifications of it, which have been since made, bring us round to Mr. Children's battery.

* It ought perhaps to be mentioned, that although experiments on heating and fusing metals, were performed with the battery as above described, yet, that similar experiments were made when the copper and zinc coils were divided into two equal parts, so as to form two pieces of equal dimensions.

ART. IV.—*An Extract from an Inaugural Dissertation on Neuralgia, submitted to the examination of the Medical Professors of Jefferson College, Philadelphia, for the Degree of Doctor of Medicine.* By JOEL FOSTER, of Vermont.

NEURALGIA being a local disease, and generally confined to certain parts of the system, has been divided by Dr. Good into three species, his division being founded on the locality of the pain.

Without regard to the cause of this affection, or its features, authors have described it under the common name of *tic douloureux*, with scarcely hinting at its varieties.

If this disease admit of any division, I think it would be preferable to confine such a division to the causes which produce it, with the general appearance, symptoms, &c.

The symptoms exhibited in the variety arising from inflammation of the neurilema, and that arising from functional derangement, being of an opposite character, and consequently requiring a diametrically opposite treatment, would, I think, serve as some apology for a division.

Were it not the fact that neuralgia arising from different causes demands a different treatment, I should be content with describing it under one general form; I do not, however, wish to be understood that it is necessary to divide it into separate diseases, but only different varieties of the same disease. By making this division it may be described with greater perspicuity.

It may with propriety be divided into four varieties.

1st. Neuralgia arising from functional derangement of the nerve.

2d. Neuralgia arising from an organic affection of the brain or its meninges.

3d. Neuralgia arising from inflammation of the neurilema.

4th. Neuralgia arising from mechanical irritation.

The first variety is by far the most frequent. It is evidently confined to the nerves of general sensibility. It com-

mences with a peculiar and inexplicable sensation, which occasionally produces slight palpitation, or difficult respiration. The patient is destitute of fever, but enjoys an indifferent state of health.

The first attack is slight and gradual, but seldom remains any considerable length of time, before the attacks of pain become more acute and lancinating. The paroxysms are almost instantaneous; darting like a shock of electricity along the course of the nerve to its extremity, when the pain as suddenly ceases as it commenced. The paroxysms are very irregular in this variety; frequently several occur in the course of a few minutes; again, a considerable time may elapse without its return; the duration seldom exceeds a few seconds, when a complete intermission takes place.

It rarely happens that both sides of the face are attacked at the same time, yet in protracted cases it sometimes occurs. The pain is more violent during the day than in the night, probably depending on the greater quantity of stimuli during the day, or the motion in mastication. The return of the paroxysm is accelerated by conversation, or much mental emotion. The countenance is generally pale and livid, and the skin flaccid.

The pulse is weak and gaseous. Although the pulse in some cases may be frequent; still there is no redness, unless it be caused by friction, or external stimulants. The disease seldom remains long confined to one particular nerve, but gradually extends through the different ramifications of those contiguous.

The eye-brows are knit, and the eye is sometimes watery. The nervous invalid, at once the victim of fear, indolence, and imbecility, is no sooner free from the paroxysm, than he complains of the sufferings he has endured, in language the most energetic.

Dr. Nelson, of Montreal, observes, "that in patients afflicted with neuralgia arising from debility of the nerve, the pain frequently extends over every part of the face, so numerous

are the nervous ramifications." He observes, "that after the disease has remained for a considerable length of time, it frequently alternates from one side of the face to the other." This, unless relief is obtained, will often emaciate the system, and impair the mental faculties.

There cannot be any doubt with regard to the seat of neuralgia in all its varieties, the name itself sufficiently designating the location of the pain.

It commences in frontal neuralgia in the supra orbital foramen, it follows the frontal nerve to its extremity, and generally passes down to the bottom of the orbit. When the second branch of the fifth pair is first affected, the pain is over the os malæ, immediately beneath the orbit, in a line from the pupil of the eye to the intermediate space between the bicuspidæ, and cuspidati teeth:

When the third branch is the seat of the affection, the pain is first felt at the canalis mentalis, the lower jaw, chin, and lip being the parts that suffer.

The portio dura of the seventh pair is frequently the seat of neuralgia; here the pain commences at the foramen stylo-mastoideum. As this nerve ramifies with all the nerves of the face, and the posterior cervical, the disease very soon extends over the face and neck, all the nerves of that side of the head participating with it.

Almost all the nerves of general sensibility throughout the system have been known to be affected with this disease. It sometimes attacks the hand and arm. Mr. Good relates a case of neuralgia affecting the breast of a young female; "the organ was full formed, soft, and globular, without the slightest degree of inflammation or hardness." He likewise observes: "The laminating shoots darted both downwards in the course of the circumjacent ribs, and upwards to the axilla, whence they afterwards descended to the elbow." A respectable practitioner of this city informed me, that for upwards of four years he was afflicted with neuralgia. It commenced at the heart; the pain was excruciating, and darted with the rapidity

of an electric shock, the pain however, would instantly subside. At length the disease was translated to the lower extremities, the sciatic nerve became affected, the pain would follow the nerve and its anastomosing branches towards the foot, the attack was instantaneous, and the continuance of pain generally transient.

I witnessed a case in the summer of 1825, in which the disease was located in the foot and ankle. In general, when tic douloureux occurs in any part of the system, it exhibits the same appearance as when located in the nerves of the face.

Having considered the locality of this variety, I now proceed to enumerate some of the causes which produce it. The first that I shall mention are the

Predisposing causes.—They whose sensibilities are most acute, and whose imaginations are most vivid, are generally the most frequent subjects of this variety of neuralgia.

Exciting causes.—When the nervous system is in a state of debility, or when the functions of the system have become impaired, slight causes may produce it. Any thing that deranges the digestive apparatus, such as an indulgence in debauchery, a sedentary life, intense study, the various passions of grief and anxiety, all conspire to render the nervous system liable to an attack: Irritating substances in the alimentary canal operate as an exciting cause, in a manner which cannot easily be explained.

The nervous system may be in a state of debility, yet it requires an irritation of some one of the nerves of general sensibility, before neuralgia can be produced. It is not essentially necessary that the nerve wherein the sensation of pain is felt should be the one irritated, because it is very evident that the stomach is often the seat of the irritation, in this as well as in tetanus. We know that by irritating the fauces with a feather, the stomach is excited to a spasmodic action, and the contents of the organ are rejected. In hepatic

tis, a severe pain is felt at the top of the shoulder, although the seat of the affection is in the liver.

The sympathetic nerve has its origin from a recurrent branch of the fifth, and a filament of the sixth pair of nerves. It receives its origin in the cavernous sinus, and passes through the foramen carotideum; it receives branches from the portio dura immediately on its exit from the cranium. Irritating substances in the stomach produce the sensation which is conveyed to the sensorium commune, and is reflected to the face. Although from the intricacy of the intersections and decussations of the nerves, it is impossible in many cases, to determine why one set of nerves should suffer while another remain unaffected, yet in many cases by attending accurately to the primary symptoms, we may be able to obtain some knowledge of the physiology of this exquisitely curious disorder.

When this variety has remained a considerable time, there can be but slight difficulty in distinguishing it from the other varieties. The peculiarly pale and flabby appearance of the countenance, the character of the pulse, and the complete intermission of pain, will, I think, in all cases serve as a sufficient diagnosis.

Treatment.—If we are acquainted with the causes which produce this variety, the treatment will be obvious. If it arise from a debilitated nervous system, tonics in large and repeated doses are indispensable. In almost every case the digestive apparatus is impaired. This should not escape our attention; the constitutional treatment should be regulated accordingly. Calomel in small doses, such as one-eighth of a grain, to one-half a grain at night, alternating it with some kind of eccoprotic purgatives. The blue pill administered in doses of from two to five grains in the evening; this in dyspeptic complaints is preferable to any form of mercury as an alterative. Powerful or drastic purgatives, where the debility is considerable, are not admissible. Emetics have

been employed by some practitioners with success, to prepare the system for more efficient remedies. A moderate purgative might occasionally be beneficial to arouse the dormant energies of the alimentary canal. When the digestive functions have been corrected, and the patient put upon a farinaceous diet, we may commence the use of tonics. Sulphate of quinine has been recommended, and has been employed successfully in some cases. Arsenic has likewise been serviceable in this form of neuralgia, but these are doubtful remedies.

The extract of stramonium has been employed by many physicians, especially by Dr. Marcet; this, however, was often capable of giving only temporary relief. Stimulants have been used in some instances with an idea that the system was preternaturally debilitated, and in some cases have been useful.

Iron has been employed by Mr. Hutchinson, an European surgeon of respectability. He remarks, that "iron of all metals is least injurious to the animal system, and cannot be ranked as a poison." The same author observes, that "it acts as a powerful tonic, increases the general excitement, promotes the digestive powers, and gives a florid hue to the blood." The preparation employed by him was obtained by combining in certain proportions, solutions of the sulphate of iron and the carbonate of soda together, when a mutual decomposition takes place, sulphate of soda is formed, which remains in solution. The carbonate of iron is precipitated, of a green colour, this soon absorbs more oxygen in the process of drying, and is converted into the carbonate of the red oxide of iron. This is much more powerful than the common carbonate of iron of the shops. It should be given as directed by him, in doses of half to two drachms, three or four times in a day. This will seldom fail of producing a radical cure. I witnessed a case last season of this variety, the patient had been afflicted fifteen months, almost every article of the *materia medica* had been prescribed, without success; bleeding had been practised, but this appeared to aggravate the disease. The different tribe of narcotics, me-

liorated the patient's sufferings for a short time only. At length iron was prescribed in doses of half a scruple, three times in a day. The dose was soon increased to half a drachm, and the patient was in a short time restored to perfect health.

In this form of neuralgia, bleeding evidently protracts the cure, and therefore ought never to be practised. The seeds of stramonium have been administered successfully by some practitioners, but in the case alluded to relief could only be obtained from the iron.

The second variety of Neuralgia, or that arising from an organic affection of the brain, or its meninges.—This variety is fortunately of rare occurrence, yet the physician has the misfortune sometimes to meet with it, and to deplore the poignant sufferings of his patient, and fruitlessly searches his materia medica in expectation of procuring relief.

The symptoms denoting this variety, are a pungent pain in the head, generally stationary; frequently partial hemiplegia supervenes an attack; the eyes are red and suffused with tears. As the disease progresses, the face becomes exceedingly distorted, the tongue is drawn to one side of the mouth, and the commissure of the lips towards the ear. The sense of hearing is frequently impaired; often the intellectual faculties become deranged. The paroxysms are not well marked; generally there are no regular intermissions, but only slight remissions.

Exciting causes.—The brain being diseased, may produce this variety, by rendering the nervous system peculiarly irritable. A morbid thickening of the dura mater, an ossification of that membrane, or a spicula of bone projecting into the cranium, may in some instances produce it.

Authors state that a preternatural hardness of all the membranes investing the brain, has been discovered on dissection. As I have seen but one case of this variety, and as that occurred near the commencement of my medical studies, I can say nothing from my own observation; I can only say, that

authors have given their testimony of its existence. This may be readily distinguished from the other forms, by the contortions of the countenance, the great effusions of tears, &c. After this variety has existed for a considerable length of time, the slightest irritation will produce convulsions. The seat of this is evidently at the origin of the nerve, notwithstanding the pain is felt at the extremity.

Treatment.—The remedies in this form of neuralgia, can do but little more than to protract our patient's existence, and meliorate his sufferings. A radical cure can scarcely be looked for. Venesection once in two or three weeks is proper to allay irritation. We should attend particularly to the digestive organs; mild purgatives have been recommended. When general bleeding becomes of little benefit, cupping may be substituted.

The diet ought in all cases to be spare, the patient abstaining entirely from all kinds of spirituous liquors and stimulants, at the same time avoiding mental excitement.

The third Variety.—The symptoms indicating this form of neuralgia, are very great tenderness, heat, and redness of the face; frequently there is at the commencement, a peculiar kind of paralysis, or rigidity of the muscles of the face, which soon become extremely irritable. The pulse is generally above the natural standard, and somewhat tense, the intermissions are not complete, yet there are frequent remissions. The pain is always augmented by coughing or sneezing. Where this form of the disease occurs in a part remote from the face, the paroxysm will increase in severity on moving the affected limb. The limb is frequently tumefied, exhibiting the appearance of inflammation in a slight degree, at the commencement. At a more advanced stage the inflammation is increased, the most trifling irritation exciting the most exquisite pain. The patient on attempting to masticate his food, when the disease is seated in the nerves of the face, will suddenly be prevented by a recurrence of the paroxysm. He dreads the least motion; his fixed attitudes and the peculiar

anxiety of his physiognomy much better portrays the intensity of his sufferings, than any verbal description.

The inflammation present, will distinguish this from the other varieties. Pressure on the nerve always increases the pain, whilst in the first variety, the pain is mitigated by pressure.

Exciting causes.—These are such as injure the texture of the nerve or neurilema. Contusions and lacerations, by creating inflammation in the part, may act as an exciting cause. Cold applied to the face or other sensible parts, produces inflammation of the neurilema, which becoming thickened, presses directly upon the nerves that are already preternaturally debilitated, and operate in a direct manner in producing it. The nerves that have suffered in this variety are found on dissection to be indurated and discoloured.

Treatment.—The remedial agents should first be directed to the general system. Venesection frequently repeated until the inflammatory symptoms are subdued, and the detraction of blood by cupping and leeching, have been recommended as highly serviceable. Purgatives might be employed in combination with venesection. Blisters and issues have been recommended by high authority, as being particularly necessary to reduce the inflammation; keeping up a constant drain from the most inflamed part, by means of an issue, has likewise proved serviceable. Moxas have been applied with success in some cases, after the usual remedies had failed. They should be applied directly over the nerve; the effect of moxas in this disease is stated to be decidedly beneficial, as they have in many instances produced a cure with the assistance of constitutional remedies. Narcotics and tonics have been much celebrated. The former would probably be serviceable after the inflammation was reduced. Their success has warranted their employment.

The division of the affected nerve has been practiced by many surgeons, in this as well as the other varieties of neuralgia, and although relief is sometimes obtained by the operation, yet it is seldom permanent.

Where this is seated in the extremity of a limb after constitutional and local remedies have failed, some have advised amputation of the extremity affected. A case of this variety occurred in Woodstock, Vt. A young lady, aged about twenty, imprudently exposed herself to cold by emersing her arms often in cold water. Slight inflammation resulted in consequence. After the lapse of a few days, she was attacked with neuralgia, located in the thumb. The pain usually commenced in the hand, and terminated at the extremity of the thumb. Almost every therapeutic agent that the sagacity of several experienced physicians could devise, was in this instance tried in a long succession, without affording more than temporary relief. She continued nearly in this situation two years, when her hand became tumefied in a slight degree, the swelling soon followed the arm above the elbow. Blood-letting was extensively employed to relieve the irritation, this likewise proved abortive. At length the division of the nerve was recommended, as the only means of cure, this was accordingly performed by amputating the thumb. For several days the pain was mitigated, until the stump ceased to discharge, when the former severity of the pain returned. The nerve was discovered to be indurated and slightly enlarged.

The cause of the disease in the case alluded to, was evidently an inflammation, and thickening of the neurilema. The sensibility of the nerve after a few months became obtunded by the violence of the action, the disease appeared to wear itself out, and the patient gradually recovered. Dr. Gallup, of Vermont, recommends the administration of emetics, after the employment of venesection. He likewise advises the vapour bath. The use of these remedies, he asserts, will lessen the great irritation, and lay the foundation of a radical cure. He says, "we ought in all cases, to avoid whatever would produce irritation of the nervous system; instilling a cheerfulness of spirits, and soothing conversation might prove valuable auxiliaries in this disease."

The fourth Variety.—This usually makes its attack with slight sensations of pain. Depression of spirits is generally

a premonitory symptom. The pain at the commencement is scarcely perceptible, at length it becomes severe and pungent, traversing the course of the nerve with great rapidity. When it originates from the irritation of a tooth, the pain frequently darts through the course of the maxillary sinus, commencing at the source of irritation. The pain is extremely exquisite, the slightest mental agitation generally produces a paroxysm. The nature of this variety will distinguish it from the other forms of this disease.

Exciting causes.—They are all those extraneous substances that produce irritation of the nerve. The most common cause is the presence of some foreign body, directly in the region of the nerve, which frequently remains harmless for months or years without producing it. At length the nervous system becoming peculiarly sensible, either by disease or debauchery, is easily acted on by slight causes. A bullet, or small shot, lodged in the neighbourhood of a nerve, or a detached spicula of bone, may and often does act as a powerful agent in producing it. This variety is often occasioned by caries of the teeth; or a portion of the jaw. The nervous filament supplying the diseased tooth, first receives the irritation and transmits it to the brain, from thence it is reflected to the trunk of the nerve. A fang remaining in the jaw after the extraction of a tooth, or the periosteum enveloping the tooth, may become morbidly thickened, and press immediately on the nerve supplying the teeth. Mr. Bew, in his treatise on tic douloureux, observes that a great proportion of the cases of tic douloureux which have fallen under his notice, arose from the irritation of the teeth. He remarks, that the dens sapientia, as it forces itself through the surface of the gum, presses against the contiguous tooth, and acts in a manner similar to a wedge.

He says, “if the finger be placed on the tooth affected, producing pressure, the patient will shrink from the pain excited by it, in this manner we may distinguish the one causing the mischief.”

Authors have described this as arising from nodes on the

cranium, from the sequelæ of syphilis: these occur in debilitated constitutions, from a thickening of the pericranium. A mercurial course will dispel the nodes, but the neuralgia remains unabated.

Treatment.—It is obvious that in the treatment of this variety, our first object should be to remove, if practicable, whatever may act as an exciting cause. The extraneous substance will continue to protract the disease, while it is suffered to irritate the nerve. If it arise from an offending tooth, it has been recommended to remove it immediately.

Our treatment after the removal of the extraneous body should be, to reduce the morbid action of the system. Leeches and cathartics would be essentially beneficial, as also an emollient poultice applied to the surface of the part occupied by the extraneous substance. The application of the moxa, directly over the affected nerve, would prove a valuable remedy in the cure of this form of neuralgia. The internal use of narcotics has by some been highly recommended. The cicuta, maculata and stramonium, are the narcotics generally employed.

Should the irritating body be lodged in a part that might render the removal hazardous, the probability of relief would be much diminished. If any inflammation exists, venesection should be practised. The moxa applied over the nerve might meliorate the patient's sufferings.

The lead cerate has been recommended to be applied over the trunk of the nerve; this, although producing paralysis, will sometimes relieve the pain.

In patients where the removal of the extraneous body is precluded, they should be prohibited the use of alcoholic drinks, their minds should be kept tranquil. Narcotics and antispasmodics might here be serviceable, also an emollient poultice applied to the part.

As neuralgia has been treated by authors generally under the common head of tic douloureux, the treatment has been similar in all its varieties. Many surgeons have strenuously

urged the necessity of dividing the affected nerves in all cases; but the operation appears to afford only a temporary alleviation, the divided ends of the nerve soon uniting, the nervous influence is conveyed as usual to its extremity. It is a settled point in physiology, that by a growth of fresh matter, or by the approximation of the divided ends, the functions of a nerve are restored.

A portion of the nerve has been insulated and removed to prevent the reunion of the divided ends, and thus tranquillizing the patient with affording only temporary relief. We know when an artery is secured with a ligature, the anastomosing branches soon become dilated, and the limb is supplied with blood. A similar result takes place in a divided nerve, inosculating filaments are enlarged, and soon transmit the nervous influence to the part which is the seat of the disease.

In almost all cases relief is not obtained without the aid of medicine, to destroy or diminish the susceptibility to return. The easy manner of treating successfully the variety arising from functional derangement of the nerve, by the internal use of the carbonate of iron, might supercede the necessity of an operation, as it would produce deformity, and do but little in expediting the cure. In that arising from an organic affection of the brain, it would be of trifling importance, or perhaps augment the patient's sufferings.

Many surgeons of eminence rely entirely on the success of the operation for the relief of their patient. On the other hand, surgeons of equal eminence declare the operation in most cases unnecessary. A surgeon of the highest rank in this city, observes, that in nearly fifty cases of neuralgia, that have fallen to his care, he has not had recourse to the operation in a single instance. He therefore regards it as unnecessary.

The croton oil has been employed in this disease, by dropping it on the tongue, but this is now seldom used. Magnetism was formerly a favourite remedy in France. This

probably was productive of considerable benefit. Most of the powers of the magnet must have been produced from a powerful impression made on the imagination.

A case is related by Dr. Fothergill, of a man afflicted with severe neuralgia, who had the power of controuling the paroxysm if he resolutely sat down to play at cards, a game of which he was particularly fond, when the pain would generally cease before he had played more than one or two games, and whilst his mind was completely absorbed no paroxysm occurred. This happened too frequently to be accidental. In every variety of this disease it is of the utmost importance to keep the mind perfectly tranquil; this may not perfect a cure, but will serve as a useful auxiliary.

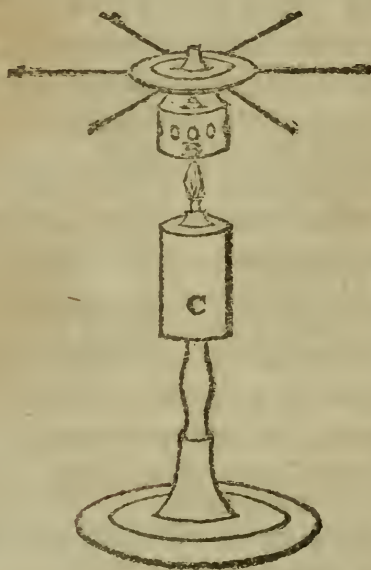
ART. V.—*Chemical Apparatus—The Calorifitor.* By J. GREEN, Prof. of Chem. in the Jefferson Medical College.

THE following contrivance is intended to illustrate the familiar fact, that different metals conduct caloric with different degrees of facility; thus if one end of a silver rod or wire be applied to the flame of a candle, the heat will be felt much sooner at the other end, than if a rod of any other metal of equal length and diameter had been used. The relations which the metals bear to each other in respect to this property of transmitting caloric, is usually exhibited with the instrument first devised by Dr. Ingenhowz, but the effect of the heat on the wax placed at the ends of the wires used in this experiment, can be seen by those persons only who are near the instrument. The object of the following contrivance is to render the experiment satisfactory to a large class of students. The accompanying figure will require but little explanation to be understood. A, is a flat brass plate with a conical opening in the centre,—into the circumference are screwed or soldered several rods or wires of the same length and diameter, but of different metals, the ends of the rods are flattened to receive each a small piece of phosphorus. B, is a hollow cylinder of brass screwed into the lower surface of A, and in which there is a number of small holes to permit a free circulation of air. C, is a spiral lamp, over which A, B, is to be placed after the phosphorus has been applied to the ends of the different metallic bars. By this arrangement it will be seen that the plate A will be equally heated, and the relative conducting powers of the different metallic rods will

be shown by the inflammation of the phosphorus at their extremities. If six rods should be used, viz. a silver, a copper, a tin, a zinc, an iron, and a lead rod, the phosphorus on the end of the silver rod will take fire first, because it is the best conductor of caloric; then the phosphorus on the copper and tin will be ignited, which are nearly equal in their conducting powers; and last of all, that upon the leaden rod. Perfect accuracy must not be expected with this instrument, an illustration of the general principle is all that is attempted.

That the passage of caloric through a metallic rod is gradual, or that it is successively propagated from the particles which are near the source of heat, to those which are more remote, may be shown by screwing a long rod into the circumference of the plate A, and then placing upon it two pieces of phosphorus, one piece at the middle of the rod and the other at the extremity farthest removed from the plate; in this case the first piece of phosphorus will take fire much sooner than the other.

While on this subject I will mention that my friend Dr. De Butts, of Baltimore, has a very neat way of exhibiting to his class the increase of temperature produced, by mixing cold sulphuric acid and water together. A watch crystal containing a small piece of dry phosphorus, is floated on the surface of water in a convenient glass vessel, sulphuric acid is then to be added, and upon stirring the acid and water a little, the phosphorus inflames by the heat thus produced. This I think a much more striking manner of exhibiting the fact, than the boiling of ether in a glass tube, which is sometimes shown.



ART. VI.—*Three cases of Specific Tumours in the Neck, which were successfully extirpated.* By GEORGE M'CLELLAN, M. D. Professor of Surgery in Jefferson College.

MOST practitioners, in this country, regard operations for the removal of large tumours from the neck and throat, as particularly dangerous; and this opinion has been strengthened not only on account of the numerous blood-vessels and nerves which must necessarily be interfered with, but also by the supposed fact that the respiratory organs and the nerves, as well as vessels, are exceedingly liable to fatal inflammations after such operations. An eminent and most authoritative teacher of surgery, in this city, was formerly in the habit of announcing the history of an operation which left the great vessels and accompanying nerve, on one side of the trachea, exposed to the influence of the air, for a short time, in consequence of which, as he conceived, death speedily ensued. This detail was always followed by a denunciation, from the same chair, against all similar operations; and it is not surprising, therefore, that a general and deep rooted prejudice should have obtained in regard to this subject.

It should be recollected, however, that it always requires more than one case to establish a precedent. As the old adage has it—*one swallow does not make a spring*. In opposition to all the unfavourable conclusions which may be drawn from this one case, might be set down many fortunate operations of the same kind which have been performed by other surgeons in different parts of the world. In addition to the decisive testimony which I have received upon this head from several professional friends and correspondents, my declared opinion in favour of such operations, under ordinary circumstances, has recently been confirmed by my own experience. As I do not intend to dilate upon this subject, at present, I will content myself with the following concise account of three cases which have appeared to me to be worth the trouble of recording.

CASE I.—Some time in the autumn of the year 1824, Mr. Christian Staurich, a respectable victualler from Penntownship, applied to me for the treatment of what then appeared to be a large, irritable, and phagedenic ulcer, with an elevated base near the top and a little on the left side of the sternum. A similar one, on the lower portion of the same bone, had previously been cured by the caustic application of an empiric, or regular cancer doctor. In the centre of the cicatrix, however, there remained a small fistulous orifice, which discharged sanious matter, and conducted the probe obliquely upwards to a carious portion of the sternum. As I soon succeeded in destroying the caries, and in healing up the fistula, by the occasional introduction of diluted nitro muriatic acid, and more especially as the ulcer at first appeared to improve under the use of sarsaparilla and the blue pill, I felt myself authorized to ridicule the opinion of the quack. The patient, however, resolutely persisted in the belief that he had been afflicted with cancer; and insisted upon it, that if I would “only cure the sores which Mr. — had left, after burning out the lumps,” he should soon be well. On inquiry, I then ascertained for the first time that the ulcers had both been preceded by tumours of considerable size, which the empiric had attempted to destroy by caustic plasters. This circumstance immediately excited a suspicion in my mind that the disease had originated in a growth of medullary substance from the periosteum of the sternum; and this view of the case was soon confirmed by the appearance of a tumefaction in the tendinous head of the sternal portion of the *sterno-mastoideus* of the same side. Under the use of the constitutional treatment, however, the ulcer continued to present a more favourable appearance, and after the repeated application of lint dipped in strong nitric acid, to produce a sloughing of the morbid structure which constituted its basis, complete cicatrization was finally effected.

But the swelling of the inner edge of the tendinous origin

of the *sterno-mastoideus* continued to increase, and notwithstanding the constant use of large doses of cicuta with sublimate, and other constitutional remedies, it eventually acquired so much bulk as to prove a source of considerable inconvenience both to respiration and deglutition.

On the 28th of July 1825, the integuments had given way, apparently as much from laceration as from absorption, and exposed a brain-like mass which appeared to be quite insulated from the surrounding parts. As the patient then very urgently demanded an operation for the removal of this diseased mass, I immediately undertook it and executed it in the following manner:

An incision, about three and a-half inches in length, was made along the anterior edge of the mastoid muscle. by extending the ulcerated aperture in the skin upwards and downwards. The edges of this incision, which were quite loose and detached from the subjacent parts, were then dissected backwards and forwards, until the whole surface of the tumour was fairly exposed. It was then rendered evident that the morbid growth, which was quite soft and yielding, had originated from the very inner edge of the *mastoideus*, and had extended inwards to press upon the trachea, and backwards to become complicated with the important parts in that direction.

I first attempted to dissect out the entire mass by detaching it from the trachea and its muscles, from which it was separated by some condensed cellular substance; and I persevered in that attempt, till I came upon the left carotid artery, which pulsated violently against my fingers. Finding it impossible to continue the dissection in that direction, I next cut away the sternal head of the *mastoideus* muscle, in consequence of which the whole mass was immediately loosened and detached from the surrounding parts. In attempting to wrench it away from the subjacent vessels, however, the soft substance yielded under the pressure of my fingers, and a small portion of the tumour

was left at the bottom of a deep cavity among the most important and almost inaccessible parts of the whole body. The common carotid was situated on the inside, the subclavian artery, thoracic duct, and par vagum immediately below, and the great jugular vein was spread over the outer margin of the remaining mass. At the same time a considerable hemorrhage, which could not be checked by the use of ligatures or pressure, was taking place from almost every part of the exposed cavity.

What my feelings were at that juncture, I shall never be able to describe. On no other occasion did I ever feel, for a moment, disposed to abandon any undertaking which I had commenced with a reasonable prospect of success. But I persevered; and by dint of constant sponging with cool water, to check the hemorrhage, and of digging with the handle of a scalpel, and my index finger, I finally succeeded in getting away every particle of the diseased mass.

By steadily pressing a sponge wrung out of cold water into the cavity of the wound for a short time, the hemorrhage so far subsided as to present only a slight oozing of blood. After having pared away the ulcerated edges of skin I applied three interrupted sutures, and completed the dressing with lint and adhesive strips.

During the first three or four days after the operation, the patient was afflicted with a very distressing sensation of throbbing in his head. He was also troubled with severe and frequently repeated paroxysms of coughing, under the excitement of which blood occasionally came away in considerable quantities from the wound. Notwithstanding all these unfavourable symptoms, however, a free suppuration soon became established, and the cavity filled up with sound granulations which were completely cicatrized over in less than six weeks after the operation.

In the month of November last, Mr. S. again consulted me for the relief of what he supposed to be a return of the same

disease; and on examination I discovered a small tumour, of the size of a hazle-nut, in the upper portion of the cicatrix in his neck. I immediately laid this open with a lancet, and after squeezing out its pulpy, brain-like mass, I applied the lunar caustic with great freedom to the whole surface. The small ulcer which resulted was soon afterwards healed up; and the patient has since remained in apparent good health.

CASE II.—In the month of January last, I was consulted by Mrs. Andrew Brown, of Pequea Valley, Lancaster County, on account of an enormous tumour on the right side of her neck. She first observed it in the year 1809, in the form of a small deep-seated lump, just beside the trachea, in the middle of the neck. It increased very slowly and without pain at first; but after the lapse of several years, she began to be alarmed by the great bulk which it had acquired, and the shooting pains which were experienced in it.

In the year 1820, she applied to an empiric, who undertook to destroy the tumour by escharotics; but the integuments had no sooner ulcerated, than the pains became so insupportable that she desisted from all further attempts in that way. She soon after applied to a surgeon of great eminence in this city, who at first proposed an operation, but afterwards declined it, on account, as he alleged, of “the strong pulse” in the tumour. From that time onwards, the tumour continued slowly to increase until I saw it, when it was fully as large as one of my fists. It was situated directly over the course of the common carotid, and covered almost the whole length of that vessel. There were two fluctuating prominences near the apex of this tumour, in which such an indistinctly thrilling sensation was perceptible, that the suspicion of an aneurism might easily have been entertained. Indeed the whole mass was sensibly agitated by every pulsation of the artery, and it was no easy matter to decide whether the vessel was enveloped in the tumour, or lay altogether beneath it. The trachea was considerably displaced towards the left; and

the sterno-mastoideus was elevated and pushed in the opposite direction by the tumour. In front was the cicatrix, produced in consequence of the former use of the escharotic application; but the integuments had contracted no adhesions to the surface of the tumour in that place, and appeared to be in every other respect perfectly sound.

On the very next day after I first saw Mrs. Brown, I extirpated the tumour in the following manner: The whole of the old cicatrix was first included between two curvilinear incisions, which met above near the angle of the jaw, and below close to the origin of the tendinous head of the sterno-mastoid muscle. After having freely dissected up the skin backwards and forwards, I next made an incision through the platysma myoides and external cervical fascia, and introducing one of my fingers underneath them, I tore them off from the subjacent surface to which they loosely adhered. The fibres of the omo-hyoideus were then discovered running obliquely across the centre of the tumour, to join the external fibres of the sterno thyroideus which were spread over its inner margin; and beneath all these appeared the internal or deep-seated cervical fascia, binding down the whole mass with great firmness. I proceeded to elevate these exactly as I did with the layers of the external fascia, except that I cut them up, with the point of my knife, directed by a finger underneath, all around the circumference of the tumour. In accomplishing this step of the operation a large branch of the superior thyroid artery, with its accompanying veins, was discovered running downwards into the upper part of the tumour. Instead of dividing this with the knife, I tore it away from the substance of the tumour with my fingers, and hardly a single drop of blood in consequence escaped.

The tumour was then easily separated from the surrounding parts, to which it was loosely attached by a lax cellular tissue. But it was not so easy to remove it from the subjacent artery and jugular vein, with which it proved to be

much more firmly connected. By pulling it, however, with one hand, and introducing the handle, and occasionally the point of my knife with the other, I finally succeeded in getting away the entire mass, without inflicting any other injury upon the important parts beneath, than the disturbance and laceration of their connecting cellular tissue would necessarily occasion.

The common carotid was left entirely exposed at the bottom of the wound, for almost the whole of its length, and the great jugular and par vagum were also quite insulated on its outer side. We then had a fine opportunity of observing the phenomena which so complete an exposure of a large artery to the influence of the air is calculated to produce. All the gentlemen who were present were surprised to find that it did not appear to pulsate, except when pressed by the point of a finger, or some other resisting body. They were much interested, also, with the fact, that it contracted very remarkably in the centre of the exposed part, so as to present an appearance somewhat like the shape of an hour-glass.

As no hemorrhage resulted from this operation, I did not find it necessary to employ a single ligature. I therefore closed the wound at once with three interrupted sutures, and some strips of adhesive plaster. The parts were found to have been fully re-united in five days after the operation, without the occurrence of any other troublesome symptom than a slight cough, and a pulsatory pain in the head.

On carefully examining the tumour after its extirpation, we ascertained that it was composed of a grayish medullary substance, enclosed in a dense fibrous capsule, with two large hydatiginous cysts projecting from its anterior surface.

If I were asked the question, in what structure this disease was first developed, I must confess that I should find it difficult to give a positive answer. Some will probably suppose that it originated in one of the deep-seated lymphatic glands;

while others, with an equally strong probability on their side, will ascribe it to a morbid enlargement of some of the granules of the lobe of the thyroid gland on the same side. In confirmation of the latter opinion, might be urged the fact, that no trace of the thyroid gland could be discovered on the side of the trachea which was laid bare during the operation, every portion of that lobe having been, in all probability, absorbed in consequence of the pressure exerted on it by the tumour.

That this was a case of specific disease, and not a mere enlargement of any of the natural structures, I trust no argument will be required to prove. The formation of the hydatids, and the appearance of the encysted substance itself, will satisfy the minds of every experienced surgeon on this head. I may state, also, in confirmation of this opinion, that some indications of a return of the disease have already been discovered. Mr. Brown lately called on me for advice respecting the treatment of "a small lump which," he said, "was growing on one side of the scar that followed the operation."

CASE III.—Mrs. Wallace, a poor, but respectable woman in Franklin Court, applied to me, some time in the summer of 1824, with an ulcerated tumour in the left side of her throat. It had remained in an indolent, schirrhous state, of the size of a pullet's egg, for years; until, about six months before I saw her, it began to ulcerate. The ulceration had progressed very slowly, having produced only an irregular and superficial ulcer of the skin, with corrugated and inverted edges. Nothing but a very offensive ichorous discharge escaped from it; and no disposition to granulate had ever been evinced on its surface. Its situation was just below the angle of the jaw, and before the anterior edge of the sterno-mastoid muscle. Every pulsation of the subjacent arteries communicated a visible motion to it; and it beat violently, when pressed on by the fingers. Severe lancinating pains were frequently experienc-

ed shooting through it; and the health of the patient was rapidly declining. Soon after I saw Mrs. W., I therefore extirpated the tumour in the following manner.

Two curvilinear incisions, about three and a-half inches long, were made, upwards and downwards, so as to include the whole of the diseased part. These were both deepened until the platysma myoides, and external cervical fascia were cut through all around the tumour; after which the entire mass was easily removed by detaching its under surface from the sheath of the great vessels and nerve, to which it firmly adhered, with the handle of a scalpel. The point of the blade had to be used only once or twice in this part of the operation, for the purpose of dividing some tense fibrous bands which could not be broken by pushing against them with the handle. Only one vessel, the branch of the superior thyroideal artery, which crosses the carotid to be distributed to the mastoideus, was divided in this operation; and that was immediately secured by a ligature.

On examining the bottom of the wound, after the removal of the tumour, the common carotid for about one inch below its bifurcation, and its two great branches for about half an inch above the same point, together with the jugular vein and par vagum, were found to have been exposed, although they were partially concealed by a very thin layer of fascia. This fascia, however, had been entirely cut away directly over the bifurcation of the arteries, so that they were left exposed to the full influence of the air, as well as to the sight.

The exposed portion of the artery appeared, in this case, to pulsate violently, even when pressure was not made by the finger. This circumstance was, probably, owing to the slight degree of pressure which the uninjured parts of the deep-seated fascia must have made on the circulating column of blood.

As a large portion of the integument was removed along with the tumour in this operation, I found it impossible to draw the opposite edges of the wound into complete apposi-

tion, although I employed two interrupted sutures, and long strips of adhesive plaster. The process of cicatrization was, therefore, necessarily slow. It was about six weeks before I could pronounce the wound to be completely healed. For the first five days after the operation, this patient was afflicted, in the same manner as the two other cases which I have related, with a troublesome cough, and throbbing pain in the head.

In May 1825, Mrs. W. returned to me again for assistance. The upper portion of the cicatrix had become corrugated, and covered with a scaly desquamation; and another painful schirrhous tumour, of the size of a hickory-nut, had formed just below the situation of the former.

As one of my pupils was exceedingly anxious to try the effects of an escharotic powder, which his father, although a respectable physician, had formerly purchased of the celebrated empiric, Dr. Martin, I put the patient under his care. To my great gratification, in the course of a few days, a deep ulceration was produced over the surface of the tumour; and in less than two months, a complete destruction both of the schirrhous tumour and the diseased integument was effected; I examined this empirical remedy afterwards with great care; and, from its appearance, and other sensible properties, was induced to believe that it is chiefly composed of the powdered root of the *orobanche virginiana*.

The poor patient is by no means, however, perfectly cured of her horrible disease. She has lately called upon me with an enormous tumefaction of the periosteum of the sternum and clavicles; and she is also afflicted with a terrible, and almost incessant cough, which will no doubt speedily put an end to her unenviable existence.

ART. VII.—*A case in which a Schirrhous Enlargement of the whole of the Parotid Gland was successfully extirpated.* By GEORGE M'CLELLAN, M. D.

DURING the past winter, Mr. now Dr. John Graham, a well educated and very intelligent young surgeon from Dublin, attended the lectures of the medical faculty of Jefferson College, for the purpose of becoming a candidate for the degree of doctor of medicine in that institution. As his left eye, and indeed the whole of the left side of his face, was evidently distorted, and as he wore his shirt-collar uncommonly high, I always suspected the existence of some disease, which impaired the functions of the facial nerve of that side. But I was not aware of the nature of the irritating cause, until at the end of the session, he applied to me for the purpose of getting my advice in regard to the treatment of an enormous tumour in the situation of the left parotid gland.

On examining the diseased part, I was immediately struck with the appearance of a large and irregular cicatrix over the most prominent surface. On inquiring into the cause of this circumstance, I was informed that it proceeded from an ineffectual attempt previously made by an eminent surgeon of Dublin, to extirpate the tumour. The operator himself, and several other respectable surgeons and physicians, who were present at the operation, at that time, as Mr. Graham assured me, were very positive in the opinion that the disease was an enlargement of the whole parotid gland. All the other surgeons who had, after that period, examined the case, joined, as far as his recollection served, in the same opinion. The appearance of the tumour itself, and the symptoms which attended it at the time when I first saw it, also tended strongly to corroborate that conclusion. It must be supposed, therefore, that I was exceedingly cautious in giving any advice in favour of a repetition of the attempt to extirpate the tumour. But the patient himself, and he was by no means unfit to form

a judicious opinion, was very anxious to have me make one effort to relieve him. The diseased part had also become exceedingly painful; and his left eye-lids were permanently prevented from closing, in consequence of which the eye-ball was constantly affected with a very troublesome chronic inflammation. I had, moreover, long been prepossessed with an idea that the conglomerate glands are rarely, if ever totally diseased; and that surgeons had often mistaken enlargements of the conglobate glands of the cheek for diseases of the subjacent parotids, in which they may become imbedded in consequence of pressure and absorption.

Reflecting on all these circumstances, and indulging a faint hope that the operation would not prove so formidable as I had at first anticipated, at the same time that I was strongly incited by the solicitations of my unhappy patient, I finally determined to make at least an attempt to extract the tumour.

On the 27th of February, therefore, in presence of my friend professor Smith, and several of my pupils, I performed the operation in the following manner: Two curvilinear incisions were first made, from a little above the zygoma downwards, to meet about two and a-half inches below the angle of the jaw, in such a manner that nearly the whole of the old cicatrix was included between them. After having reflected the integuments from the surface of the tumour, I next dissected down to the zygoma and masseter muscle before, and to the cartilaginous tube of the ear, and mastoid process behind. As no impression had then been made upon the body of the tumour, and as I could dissect no farther in either of those directions, I immediately proceeded to burrow under the lower extremity of the mass. In endeavouring to accomplish that step in the operation, I was necessarily obliged to divide the posterior belly of the digastricus muscle; after which my fingers were at once admitted under the whole body of the tumour, and I was enabled to make effectual attempts to wrench it from its bed. Before I proceeded farther,

however, I insulated the continued trunk of the external carotid, just as it was entering the tumour, together with the descending veins, which accompanied it; and, instead of cutting them across in the usual manner, I tore them out from the body of the tumour, with a thumb and finger. My face and eyes were instantaneously deluged with a gush of blood; but before I could recover myself sufficiently to cast a ligature around the vessels, which I still commanded with my fingers, the hemorrhage altogether ceased, in consequence no doubt of the retraction and contraction of the lacerated extremity of the artery. I was then enabled to proceed with full deliberation; and, after powerful and repeated efforts at wrenching, aided by an occasional use of the knife to divide the strong bands of condensed cellular substance, and some of the fibres of the styloid muscles which adhered to the tumour, I finally succeeded in elevating the whole mass above the ramus of the jaw, and mastoid process. The trunk of the *portio dura*, very much enlarged in consequence of the previous irritation, was then seen emerging from under the mastoid process, and mounting over the posterior margin of the tumour to enter its substance near the anterior surface. The unnatural state of tension in which this exquisitely sensible nerve was then placed, produced such an agonizing degree of pain, that the sufferer was thrown into convulsions and syncope. I made all haste to divide the nerve,* therefore, and the patient was soon restored to his natural state of sensibility and apprehension. To complete the operation I had then nothing more to do than to separate the upper portion of the tumour from the zygoma, which I was compelled to effect by the scalpel, inasmuch as the layers of fascia were too strong to be lacerated. In this last step of the operation the main trunk of the temporal artery was necessarily cut, in consequence of

* As soon as this was done, the cells of the conjunctiva were instantaneously injected with extravasated blood.

which a profuse hemorrhage took place from the recurrent circulation. I was, therefore, obliged to apply a ligature, which was the only one employed during the whole operation. What became of the internal maxillary artery, I could not discover, although there can be no doubt that it was torn asunder in the act of wrenching the deep-seated portion of the tumour from behind the angle and ramus of the jaw.

In consequence of the fainty, and almost exhausted state in which the patient remained for some time after the operation, there was much less oozing of blood from the exposed surfaces than could have been anticipated. Our view of the parts composing the parietes of the wound, therefore, was not at all obstructed; and the anatomy of the whole could be almost as clearly pointed out, as in the dissected subject. The cavity of the wound was certainly the deepest and most frightful that I have ever seen in the living body. It appeared much larger at the bottom than on the surface; and its depth was full four and a-half inches from the skin to the walls of the pharynx, which was largely exposed at the bottom of the wound.

The styloid process, entirely bared, and even divested of a large proportion of its muscular fibres which had been torn away with the tumour, projected into the back and lower part of the wound. The internal carotid and jugular vein, together with the hypoglossal nerve, which were barely covered with some loose cellular tissue, formed the posterior parietes of the deep and expanded part of the cavity that was situated within the ramus of the jaw before, and the mastoid process behind. With a finger, introduced behind the ramus and angle of the jaw, could be felt the two pterygoidei muscles, which were completely exposed and projected into the cavity in that situation. In fact the tumour appeared to have projected into, and to have filled up every space into which the parotid itself could possibly have insinuated; and no vestige of any portion of that gland, either sound or morbid, could be discovered in any part of the exposed cavity.

As I was anxious to avoid, if possible, the use of ligatures around the lacerated extremities of the arteries which had been torn across during the operation, I waited some time to ascertain whether there would be any danger of hemorrhage. As nothing more took place, however, than a slow oozing of blood, which gradually coagulated, and filled up the cavity of the wound, I did not hesitate in depending on the external dressings alone. To prevent the edges from being reflected inwards, I first applied three interrupted sutures; after which some adhesive strips and a compress of lint were fastened on by a head-bandage.

For the first three days after this operation, the situation of my patient was truly alarming. The powers of his nervous system appeared to have been greatly shattered; and, notwithstanding the free use of opiates, the symptoms of constitutional irritation ran very high. The secretion of urine was almost entirely suppressed; and when, on the second day, the first few drops began to be discharged through his urethra, a severe and excruciating strangury came on. Spasmodic contractions, also, frequently took place in the muscles of the extremities; and a most distressing pervigilium, which no plan of treatment could, for all that length of time, counteract, rendered the prospect of his recovery still more uncertain.

But the most alarming of all his symptoms was the fact that, in the course of a few hours after the operation, he found it impossible to convey any thing into the esophagus. Whether this difficulty proceeded from mere nervous irritation, or, as I supposed, from a collapse of the parietes of the pharynx in consequence of its exposure, and the laceration of the stylo-pharyngeus muscle; or whether it was caused, as the patient himself imagined, by the pressure of the large coagulum, which was confined in the wound, upon the internal and membranous walls of the same cavity, it was not easy to decide. But it was certain, that not the smallest particle of any substance could, for the space of two days, be swallowed;

and when an attempt to drink any fluid was made, universal convulsions, precisely like those which occur in hydrophobia, immediately supervened.

By the use of opiate injections, however, and the application of warm stupes around the pelvis and abdomen, the distressing symptoms of strangury, and the spasmodic twitches of the muscles, first began to disappear. Soon afterwards, as I was preparing to inject some fluids down his esophagus by means of a stomach tube, the patient made a successful attempt at deglutition, which gradually became more easy, and, of course, less complicated with the convulsive actions. The young gentlemen who were in attendance, attributed this to the effects of a copious secondary hemorrhage which had, a short time previously, taken place from the wound in consequence of a severe spasm of the muscles about the throat.

Suppuration was very slow in taking place from the wound; but finally, after the use of a decoction of bark, and the application of large fermenting poultices, it became established and dissolved away the enormous coagulum. Before the cavity, which almost became converted into an abscess, could be evacuated, however, I was obliged to re-open the wound with the point of a bistoury. Granulations then speedily sprouted up, and completed the recovery of my fortunate patient.

The cicatrix, which has become very firm, is sunk into a deep hollow behind the angle of the jaw. But the countenance is by no means so much deformed as it was before the operation, especially as the part can now be easily covered from the observation of a by-stander. The paralysis of the muscles, and the distorted appearance of the eye are, moreover, greatly improved; and the situation of the patient, as regards the use of his jaw, and the power of moving his head, has become incomparably better. The following letter which I have just received from Dr. Graham, who is now established as a practitioner of medicine in the city of New-York, will serve

at least to show that he thinks himself amply compensated for all the pain and hazard he incurred by submitting to the operation.

New-York, July 24th, 1826.

MY DEAR SIR,—In compliance with your request, I embrace the earliest moment of submitting to your knowledge, a second time, a concise account of the first operation and subsequent progress of the tumour. As far as I can recollect, the tumour commenced its growth when I was thirteen years old, and kept increasing imperceptibly until I was eighteen. At that time several physicians were consulted on the occasion; they all pronounced it to be a case of scrofula; leeching, cupping, blistering, &c. were all prescribed, but to no effect. In the year 1819, I went to Dublin, and consulted Mr. ***** who is considered a very eminent surgeon; he immediately pronounced it to be a case of medullary sarcoma, and prepared to extirpate it, explaining to me, however, the danger of the operation; observing, also, at the same time, that he thought the parotid gland was diseased, and if it was, he considered the operation would be unsuccessful. After a few days serious reflection I concluded to have the operation performed. Mr. ***** assisted by Drs. *****, *****, *****, and *****, commenced the operation on the 10th of March, 1819. An incision was made in the tumour from the lobe of the ear to the angle of the jaw; the integuments were then dissected off to the base of the tumour; when he began to burrow under the tumour with the scalpel, a profuse hemorrhage took place; he felt alarmed, and concluded with the other gentlemen, that it was incorporated with the branches of the external carotid. To satisfy himself as to the fact, he dissected a piece from the tumour, which he said confirmed his opinion as to its extreme vascularity. They all agreed on the impropriety of proceeding any farther, and determined to pass a seton through the tumour from the lobe of the ear to the angle of the jaw, for

the purpose of bringing on a suppuration; a seton was introduced, and powerful styptics applied to suppress the hemorrhage, which, notwithstanding, was very profuse. The inflammation became so very high on the second and third day that copious venesections were required, and on the fourth, no appearance of suppuration commencing, he determined to apply escharotics. The corrosive sublimate was applied, by which I suffered the most excruciating pain for six hours, and, in the course of twelve after its application, I was severely salivated. By poulticing, the dead portion began to separate in the course of a few days, without any diminution whatever in the size of the tumour.

In the same manner as described the corrosive sublimate was applied six or eight times in the course of six weeks, always followed by a profuse salivation; as soon as the dead portion was separated, there was an evident reproduction of the tumour. At this time my strength was almost exhausted and scarcely any hopes left of recovery. I sent for Mr. Carmichael who disapproved very much of the treatment I had received; he ordered the escharotics to be discontinued and poultices substituted, together with the compound decoction of sarsaparilla, promising at the same time to endeavour to extirpate the tumour, when the wound should be completely healed, and my strength admit of the operation. Under the treatment prescribed, in the course of one month the wound was completely healed, and my strength and appetite in a great measure restored. After that time the tumour was imperceptibly increasing, and when operated on by you was much larger than it ever was before. At present I am quite free from pain, and suffer no inconvenience from the operation, but a slight paralysis of the muscles of the side of the face.*

* Before the operation the muscles were affected with a neuralgic rigidity and distortion, from irritation of the nerve; now they are simply paralyzed in consequence of the destruction of the trunk of the *portio dura*.

Time and distance can never erase from my memory the important services you have rendered me. With sentiments of sincere esteem, attachment and friendship,

I am, Dear Sir,
your most obedient
and humble servant,

GEORGE M'CLELLAN, M. D.

JOHN GRAHAM.

In describing the form of the tumour, which is now preserved in the museum of Jefferson College, I have only to observe that it is exactly adapted to the conformation of the wound that was left behind the jaw after its extraction. The part which originally projected outwardly upon the back of the cheek is distinctly separated, on its anterior surface, from the larger and deep-seated portion by a groove into which the posterior margin of the angle and ramus of the jaw had been received. The trunk of the *portio dura* is left, full one inch in length, entering into the posterior margin of the preparation, just underneath some strong layers of fascia which were dissected off from the mastoid process in the act of separating the tumour from its outward attachments. The whole mass is enveloped in a strong membranous capsule,—produced by the condensation of the surrounding cellular substance. This was ruptured, however, just beside the situation of the old cicatrix, in one of my severe attempts at wrenching away the deep seated portion of the tumour from behind the jaw, and some of its contents were forced out, very suddenly, with a crackling noise. On examining the internal conformation of the tumour, every one has been struck with the circumstance that it differs but very little from the appearance of the substance of a healthy parotid gland. The only difference which I can discover, even on a minute examination, is in the size, hardness, and colour of the granules, which are considerably larger, and more indurated than natural, at the same

time that they present a stained and reddish-yellow appearance. The description which Dr. Baillie has given, in his morbid anatomy, of that enlargement and induration of the pancreas which he imagines to be the precursor of true schirrus in that gland, will afford a very good idea of the appearance to which I allude.

In conclusion, I will only observe that this diseased condition of the parotid gland rendered the facility of performing the operation much greater than that which would have attended a similar attempt in a healthy condition of the same part. Naturally the granules of all the conglomerate glands are but loosely connected together, so that, under any violent attempt at wrenching, they will sooner tear apart from each other than be removed entire from among the parts in which they may be lodged.

ART. VIII.—*Suture of the Palate.* By NATHAN SMITH, M. D. Prof. of Surgery, in Yale College.

THE effect of suture of the lip in partially closing the fissure of the palate, when this deformity exists together with hare-lip, some time since suggested to me the propriety of applying the suture, when the operation is performed at an early period, directly to the palate itself.

Every one must have observed that, when in early infancy the suture of the lip is properly made, the gentle pressure which the lip, then more straight than natural, exerts upon the cleft portions of the jaw, has a tendency gradually to approximate them, for at this time the bones of the face being yet in part cartilaginous, readily yield to little force.

Something more than a year since, in the state of Maine, a case occurred to me in which I judged it proper to attempt the more perfect closure of the palate by sutures applied directly to that part itself. I reflected that the parts must at that period (infancy) be so soft as to offer but little resistance

to the needle, and so yielding as to be brought, with little force, in close contact with each other. It appeared to me, also, that the closure of the lip would be much more complete by thus bringing the sides of the jaw into their natural situation with respect to each other.

The operation was accomplished with less difficulty than I had anticipated. The margins of the palate were pared with the knife, and a ligature of suitable size, with a needle very much curved, was carried through on one side, a sufficient distance from the margin, and brought back through the opposite. Two threads were employed in this manner, and the parts were brought into contact with very little difficulty. I have not since seen the patient but have reason to believe that the operation was perfectly effectual.

I have since seen an account of a similar operation performed by an English surgeon.

ART. IX.—*Three cases in which operations for securing the common Carotid Artery have lately been performed.*
By GEORGE M'CLELLAN, M. D.

IN the months of May and June last, I performed three operations for securing the common carotid artery.

CASE I,—Was a little daughter of Mr. West of Bristol, aged nine years, with an enormous *aneurism by anastomosis*; which, covering the whole of the left cheek, extended from the temple and eye of the same side to within two inches of the clavicle, and from the tube of the ear, which it filled, to the nose and mouth. The left nostril was closed by the disease; the tongue, soft arches of the palate, and tonsil of the same side, together with both lips, were also invaded by it and distended to an enormous size. The integuments were very thin and discoloured from the appearance of the diseased vessels underneath; and the whole mass pulsated actively and tumefied, whenever the patient was excited. The difficulty in performing this operation was very great, owing to

the extension of the disease down the neck; but the common carotid was notwithstanding secured by a single ligature opposite the lower end of the thyroid gland. The ligature came away in fourteen days, and the tumour has since been gradually diminishing. It has already left the throat, ear, nose, and upper part of the cheek.

CASE II,—Was a lad sixteen years old, in York, Pennsylvania. He had been thrown from a horse, three years ago, when he fell upon the right side of his head and received a severe concussion. He was afterwards afflicted with epileptic attacks; and, about twelve months ago, the left side of his body began to be paralyzed. At the same time a hard tumour was discovered, just above the right ear, which continued to increase ever after. Most excruciating pains were unremittingly experienced in the situation of this tumour, and no relief could ever be obtained from the most active mode of treatment. The scalp was first divided, and carefully dissected from the surface of the tumour; when it was ascertained that a large and vascular fungus had begun to protrude through the bone in two separate points. This, no doubt, proceeded from the subjacent surface of the *dura mater*; and, as the meningeal artery of that part holds but few anastomoses with the surrounding vessels, it appeared reasonable to suppose that relief might be obtained by obstructing the circulation through that side of the head. The right carotid artery was therefore secured by two ligatures just below its bifurcation; and the wounds were dressed in the ordinary way. In about two weeks the ligatures came away spontaneously, and the patient was walking the streets. The tumour had diminished very much in seven days after the operation, and since that time has still further decreased. Dr. Macilvain writes that “the patient has remained entirely free from pain ever since the operation,” “that his general health is greatly improved,” and that “the paralysis is regularly diminishing.”

CASE III,—Was the daughter of Mr. J. Fryburg, of Spring Garden, five years old. When she was six months old a

small and discoloured tumefaction was discovered in her left eye-lids, which continued to increase ever after, notwithstanding the use of leeches, low diet, lead water compresses, &c. In the month of May last, it had filled the whole orbit, so as to protrude the eye very much, and to tumefy the lids exceedingly. It was subject to alternate "risings and fallings," as the parents observed, during which the eye-ball would project and retire in a remarkable manner.

On pressing on the lids, the whole of the contents of the orbit could be felt pulsating, or rather rolling like a mass of small worms, so that no doubt respecting the nature of the disease could exist. It was evidently an aneurism by anastomosis of an active character. On the 10th of June, I therefore exposed the left carotid just below its bifurcation, which in this case was nearly one inch lower than natural, and tied it with a single ligature. The patient, although very unruly, did well; and on the fourteenth day the ligature came away. The tumefaction of the lids has now almost disappeared, except at the inner corner of the lower lid, where it covers the lachrymal sac. The globe of the eye has also retired into the orbit almost to its natural depth; and no pulsatory movements can ever be discovered under the pressure of the fingers.

Of the difficulties which I encountered in performing the first and third of these operations no one who was not actually present with me, can ever form an adequate idea. A child cannot be prevented from attempting to cry, from holding in the breath, and from contracting the muscles of the neck violently when the head is confined by assistants,—all of which circumstances prove, to say the least, exceedingly embarrassing to the operator. On examining the records of all the cases to which I can gain access, I have been surprised to find that no surgeon has heretofore attempted to perform the same operation on a child. The youngest patient on record is mentioned in one of Dr. Mott's cases, in which the young lady was nineteen years old.

QUARTERLY HISTORY

OF

IMPROVEMENTS IN MEDICINE, SURGERY, &c.

PHYSIOLOGY.

1. *Report made by M. Magendie to the Academy of Sciences (at their meeting, July, 1825,) on the subject of a Boy, named Honore Trezel, Deaf and Dumb from his Birth, who obtained Speech and Hearing under the care of Dr. Deleau, jun. (From the Edinburgh Journal of Medical Science, No. ii.)*—At the sitting of the 10th of May, 1824, M. Percy made known to the academy that a deaf and dumb boy, named Trezel, had lately acquired hearing under the care of M. Deleau. The success had been as complete as could be desired. The child, who before the operation was entirely deaf, had been enabled to hear all descriptions of noise, and even to notice certain intonations of the voice.

But Trezel was, notwithstanding, far from having acquired the knowledge of sounds, though he enjoyed the faculty of hearing. An immense interval still separated him from children of his own age, who were possessed of a good organization. Noises of all kinds, the accent of the voice, the words which were addressed to him, as well as those which he endeavoured to form in his larynx, were only to him a source of new sensations, which delighted him; but he drew no other use from them. He was ignorant of the great advantages of language, and perfectly unaware that the vague and strange sounds that he sometimes produced with his vocal organ, might be the means one day of enabling him to express his wants and his thoughts. A melancholy experience has, in other instances, shown that if such a deaf and dumb patient, under these circumstances, be merely left to the care of his family, his sense and his intelligence will remain in a state which is not much superior to that in which he found himself before his cure had been completed. As soon, therefore, as Honore Trezel had obtained the faculty of hearing, such an education was required as might be a substitute for that which his infirmity had prevented him from receiving, and which

should enable him to avail himself of the sense that he had just recovered so happily. At the meeting in which M. Percy announced the result of the operation performed upon the young Trezel, he added, that M. Deleau was engaged in the instruction of this child, and that he would make known the result of it to the academy. M. Deleau has kept his promise.—Trezel was presented to you in one of your last sittings. He repeated from memory the fable of the Fox and the Crow, performed different exercises of analysis; and you have been enabled to judge yourselves of the state of his hearing, of his voice, and of his degree of intelligence, after nine months of assiduous care. This fact is so much the more important, as none of the deaf and dumb who have obtained the faculty of hearing by an operation, or who have acquired it spontaneously, have been observed a sufficient length of time by men of information, who could inform us what change had been effected in them, by a new sense intervening all at once in the midst of senses already tried; or who could make known what alterations have taken place in the intelligence, the instinct, the speech, or the motions of such individuals, by the development of a function so important as that of hearing; or, lastly, who could acquaint us whether a person born deaf and dumb, and who has acquired a hearing, is capable of entering into all the relations of social life, or whether he is not apt to step out of their bounds. It is evident that many interesting physiological questions connect themselves with the treatment of M. Deleau; and for this reason commissioners were appointed by you, who have considered it their duty to collect and verify all the circumstances of the case. What I am going to relate is an abstract of the report made on the occasion.

Claude Honore Trezel, now ten years of age, born at Paris, of poor parents, was of that class of the deaf and dumb who did not even hear the most violent noises, or the loudest explosions. His forehead was large, and his head well made; but his physiognomy, the image of his intelligence, had little expression. He dragged his feet in walking; his gait was tottering; he did not know how to blow his nose; and had, in other respects, received no education adapted to his situation. He made his principal wants known by a definite number of signs.

The operation which was performed was not a new one; it was invented towards the end of the last century by a deaf person of Versailles, who, fatigued with his situation, succeeded in curing himself. It is now adopted by all physicians who treat disorders of the ear; it has, above all, been frequently employed in practice by Dr. Itard. It consists in injections of air, or of different liquids, into the drum of the tympanum, by the tube which ends in the back part of the mouth. It has many serious

inconveniences, which happily did not present themselves in the case of young Trezel.*

The days which immediately followed an accession of hearing, were for Honore a period of rapture. The noises which he heard gave him ineffable pleasure; he sought them with avidity; on hearing a musical snuff-box he was in a sort of extasy. But there was a certain time required before he could perceive that speech was a medium of communication; besides, he attended at first not merely to the sounds which were formed, but to the movements of the lips by which they were accompanied; and thus he believed, during some days, that a child seven months old spoke like grown-up persons, merely because he saw his lips make movements. But he was soon taught his error; and he was aware from that time that it was to the sounds he should attach importance, and not to the motions of the lips.

But it unfortunately happened that he heard a magpie pronounce some phrases. In generalising on this particular fact, he concluded that all animals were gifted with speech, and consequently was anxious to oblige a dog to speak, of which he was very fond. He even resorted to violence to make him say *papa, du pain*, the only words that he could himself yet pronounce; but the cries of the poor animal terrified him, and he desisted from his attempt.

These first periods of hearing produced a great change in the physical state of Trezel. His gait became more firm; the mournful expression of his face was changed into a smiling and gay air; he learned to blow his nose, and ceased to drag his feet in walking.

A month had passed away, and Honore remained nearly at the same point. Absorbed by his sensations and his new remarks, he could not comprehend the different syllables which formed words; and nearly three months were necessary before he could distinguish some compound words, before he could know their sense, and that of short and simple syllables.

It was likewise a length of time before he knew the direction of sound. A person having concealed himself in the room where the boy was employed, called out to him, but it was with considerable difficulty Trezel discovered the hiding-place of the individual who hailed him; and this discovery was much more

* It has been explained, in a separate work published on this case, that injections of water, by means of a small flexible sound, were forced into both the Eustachian tubes. These injections were not either accompanied by those dreadful pains which sometimes determine fainting, and oblige the treatment to be suspended, or followed by abscess and suppuration in the drum, which resist all hope of cure.

owing to the eye, and to the reasoning at which he had arrived, than to the employment of the ear.

All the interest, however, which Honore felt in the sensations procured him by his hearing, had not prevented him from making one observation of the greatest importance,—his larynx formed sounds; and to the pleasure of hearing them was superadded that of being able to produce them. It was in this that Trezel's case displayed the most curious and the newest phenomena.

The instrument of the voice is composed of a great number of different parts, among which are found muscles, bones, cartilages and membranes; consequently, it would have been wonderful if, without some preparatory exercise, all these parts, all these organs, had acted at once in concert, so as to produce vocal sounds and appreciable articulation: this, as we ought to expect, did not happen. The first sounds that Trezel was enabled to utter were dull and heavy; he pronounced, not without difficulty, A, O, U. The two other vowels came much later; and the first words that he formed were *papa, tabac, de feu, &c.* But, when he wished to repeat more complicated words, he made a multitude of contortions of the lips, of the tongue, and of all the agents of pronunciation, of the use of which he was entirely ignorant, resembling, in this respect, a person who begins to learn the art of dancing or swimming, and who exhausts himself in useless efforts and ungraceful movements.

But, induced by temptations, he acquired the pronunciation of some compound words, which had at first been beyond his abilities.

It was at the moment of making this attainment, that he conceived himself on a level with other children of his own age. Satisfied with himself, therefore, and proud of his new situation, he treated his old companions in misfortune with great disdain, and wished to see them no more. Few persons who had seen him at this time would have discovered in him a happy disposition.

But, notwithstanding this little emotion of vanity, Trezel advanced slowly in pronunciation. He left out a great number of syllables, or rather he articulated them in a very defective manner. Perhaps he never would have overcome this difficulty, if recourse had been merely had to his organs of hearing, but an appeal was likewise made to the sight. Different syllables were delineated for him, and from this moment he pronounced them much better, comprehending with much more clearness the assemblage of vowels and consonants, and the reciprocal influence which these exert upon each other. Thus a very remarkable fact was proved,—namely, that the association of the sight with the movements of the larynx was prompt and easy, while that of the hearing and of the organ of the voice was always difficult,

and was only exercised with slowness. For example, as soon as Honore perceived written syllables he pronounced them, if at the same time they were reverberated close to him; but, if the table on which the letters were traced was carried away, in vain were certain syllables articulated in his ear in the most distinct manner possible; to articulate them himself was an impossibility. He comprehended much more easily the affinity of sounds to written letters, than to the action of his larynx.

By constantly adhering to this mode of proceeding, Trezel has learned to read and write with sufficient rapidity, but after a manner which is similar to that of persons who learn a strange language, and who, in general, read it and write it long before they can speak it. Up to the present moment, Honore reads with his eyes, and writes infinitely better than he speaks.

His pronunciation is very defective. The Rs in particular rumble in his mouth in a most singular and disagreeable manner. The different varieties of accent seem unknown to him; but, when we consider the point from which he set out, we ought to be fully satisfied to see in him the degree of instruction which he displays in so short a time.

Honore exhibits another phenomenon, which has excited the attention of the commissioners of the academy. When a word is said distinctly to him, he repeats it immediately; when he is hailed, for instance, he does not fail to pronounce his name; it only appears of consequence to him to reproduce the word which he may have just heard. If his instructor would wish to address himself to his mind, he employs for the purpose gestures or expressions of the countenance. It is by signs only that the youth expresses himself with ease and quickness, and it is only by the employment of these signs that a judgment can be formed of his intelligence, and of the quickness of his conceptions.

In this point of view, Honore presents a phenomenon highly interesting. Having acquired a new medium for the expression of his ideas, it might be supposed that he would have neglected the method, so greatly inferior to speech, of which, until then, he had availed himself. But, up to the present time, the contrary has happened; his natural language, namely, that of signs, instead of being lost and gradually replaced by speech, has rapidly improved, and acquired a perfection and quickness much superior to that which it displayed before he had recovered his hearing.

However, in his connexions with children of his own age, Honore begins to employ simple words, and particularly substantives, to make known his principal desires. Perhaps the time may arrive when he will make a more frequent and complete use of speech; but in this respect it is possible that he may always remain far below other men. For we have nume-

rous examples of children who may be called dumb, only because there requires in them a certain effort of the ear to comprehend words, and rather a difficult exertion of the larynx to speak. Finding, by the employment of signs, an easy medium of communication, they neglect to exercise the ear and the organs of speech, and thus remain classed among the deaf and dumb, when in reality they are neither dumb nor deaf.

But to return from this digression.—Honore Trezel, who had been completely deaf, even to such a degree that a year ago he did not hear the loudest detonations, now listens attentively to all noises, knows when they come from afar off, distinguishes their character, avoids carriages and horses, and goes to open a door when any person knocks. He knows how to appreciate the musical rhythm, and takes pleasure in listening to singing and musical instruments; he tries even to imitate the modulated voice, without, however, having been yet able to succeed. He knows how to appreciate and repeat all the articulations of our language; he comprehends, he analyses, repeats from memory a certain number of phrases within his capacity, and he replies to them. He executes what his instructor by words directs him, but with other persons he is not yet able to do this; for the same reason that we comprehend a foreigner when we are accustomed to his pronunciation, and for the same reason that we are entirely incapable of comprehending him when he speaks to us for the first time.

Here are assuredly results sufficiently gratifying. When we take into consideration all that this child has learned before arriving at his present condition, as well as all the ideas and new combinations of them which have been indebted for their operations in his mind to the instinctive associations which have been established between his ear and his intelligence,—between these, again, and the organs of the voice,—between his ear and his larynx, we have no difficulty in flattering ourselves with the hope that his moral condition and his physical state will continue to improve.

But let us not anticipate the future; let us rather wait the result of experience, which in this, as in all new questions, can alone enlighten us.

Your commissioners think that the efforts of M. Deleau to impart the blessings of social life to beings who, in a great degree, had been separated from it by nature, are deserving of the eulogium of the academy; that the results at which he has arrived in the young Trezel, are very important and worthy of the most lively interest. They propose to you to engage M. Deleau to continue the education that he has so happily begun; to multiply, as much as possible, observations of the same kind; and thus to lay the foundation of a species of instruction or educa-

tion, which ought to be esteemed among the number that meliorate the condition of the human race.—(*London Medical and Physical Journal*.

(Signed)

DUMERIL,
GEOFFRY ST. HILAIRE,
MAGENDIE, *Reporter*.

COLLECTANEA MEDICA.

2. *An Account of the present state of Medicine in Italy.* By FR. W. OPPENHEIM, M. D. (From the *Edinburgh Medical and Surgical Journal*, Nos. lxxxvi. lxxxvii. —The above is the title of an article in a late number of the Magazine of Foreign Literature, an excellent medical work, edited in Hamburgh, by Dr. GERSON and Dr. JULIUS. It contains much interesting matter, from which we have made a selection, calculated to give a correct idea of the state of medical science in Italy, and to serve as a guide to those who visit that country for the purpose of adding to their stock of professional information.

Our author describes the institutions of the Italian states, according to the order in which he visited them, beginning with the kingdom of Sardinia, in which there are two universities, one at Genoa and one at Turin.

In the Genoese university ten professors are employed in teaching the different branches of medicine and surgery. None of these professors, however, enjoy much celebrity; practical anatomy is shamefully neglected, and there is no anatomical museum. The languishing state of science, in this university, is attributed by our author to its being under the direction of the Jesuits, who are in possession of its revenues, and expend considerable sums upon the purchase of theological books, while they almost entirely neglect, or give but little encouragement to, the cultivation of natural history, comparative anatomy, and the other departments of medical education. During the short-lived constitution of thirty days, the students ranked themselves on the side of the anti-royalists, in consequence of which the university was closed for three months, upon the return and restoration of the king.

The population of Genoa amounts to 90,000. It has two civil and one military hospital, besides a work-house.

The *Ospedale Pammatone* is very large, and externally resembles a palace more than a hospital. Its pillars, stairs, and balustrades, all of Carrara marble, lead the stranger to expect a commodious interior. But here he is miserably disappointed, and finds a total want of every thing suited to promote the health

or comfort of the patients. The wards are very spacious, but badly lighted, imperfectly ventilated, and extremely filthy. The floors are made of tiles, half worn out, and scarcely ever cleaned. The bedsteads are of iron, have no curtains, and are ranged in three rows, two of which are so close to each other that they touch.

The patients are attended by nuns, belonging to the order of Nostra Donna del Rifugio. Three physicians and four surgeons are attached to this institution, which has 1600 beds, but is capable of containing 4000. When our author visited it, 1824, the number of patients amounted only to 826. Post-mortem examinations are here very rare, and the anatomical cabinet consequently very poor, containing only about a dozen dried preparations, and one skeleton! In 1821 the admissions amounted to 9344; the proportion of deaths to recoveries, as one to six.

Spedale degli Incurabili, is a handsome but badly situated building, containing 1000 beds, and destined for the reception of the aged, the poor, and the insane. Patients of the latter description occupy a separate wing of the building. Their wards are spacious, but here again we meet with three rows of beds; and our feelings revolt at the situation of these wretched beings, the greater number of whom are chained hand and foot to their iron bedsteads! where such a mode of coercion is employed,—where the strait waistcoat is unknown,—where the physicians, Drs. Isola and Timoni, (we wish not to conceal their names,) hurry daily through this abode of misery, without giving a single direction to the nurse-tenders concerning the treatment of the patients, can we wonder that a cure is scarcely ever effected? We are sorry to find that, disgusting as such a scene must be, it is even surpassed in an asylum at Vienna, where Dr. Oppenheim has seen the lunatics not only chained but caged, like beasts in a menagerie!

We feel particularly anxious that such a state of things should not exist unknown, and consequently unredressed. What Dr. Oppenheim has already disclosed to our professional brethren in Germany, we think it our duty to publish in Great Britain, in the hopes of thereby contributing to promote a reformation in the treatment of lunatics in Italy: the first step to a reformation being to attract public attention to the extent and nature of the abuse. While we feel it our duty to record this barbarous treatment of lunatics in one of the first cities in Italy, we are yet far from wishing to stigmatise the Italian character as inhumane, or their physicians in general as ignorant; for we ourselves recollect the existence, and that at no very distant period, of abuses not less enormous in Great Britain.

Dr. Oppenheim is doubtful whether to attribute to absolute want, or a degraded state of national character, the alms-beg-

ging which prevails in the Italian hospitals. "As I passed each bed," he observes, "its sickly tenant stretched forth his meagre arms to implore for charity!"

Albergo dei Poveri, a splendid building, adorned with costly architectural ornaments, but deficient in more essential qualities. It contains 2000 persons, consisting of the poor, the aged, and many orphans. The internal management of this institution is much better than that of those already described. The paupers and orphans appeared clean, well clothed, and well fed.

In Genoa there are also a military hospital, containing 800 beds, and an institution for the instruction of the deaf and dumb. The latter was founded in 1801, by the Abbe Octavius Assarotti, who still presides over it, and pursues nearly the same mode of instruction as is usual in France. In Italy, as elsewhere, this malady has been observed to be much more frequent among the poor than among the rich. The state of this institution, which contains twenty boys and twelve girls, is highly creditable to the Abbe.

Turin, for a population of 80,000, has four civil hospitals. That of *S. Giovanni* is the largest, being capable of containing 600 patients; but, at the time of Dr. Oppenheim's visit, there were not more than 200 in it. The wards are large and well ventilated. The proportion of deaths to recoveries, out of 4557 patients admitted in 1821, was as one to seven. There is a clinical ward in this hospital, containing twenty beds.

Casa dei Pazzi contained 260 lunatics, of whom more than one-third were chained. Their situation seemed even more deplorable than that of their fellow sufferers at Genoa. Although there are three physicians and three surgeons attached to this asylum, yet Dr. Oppenheim could not discover that any curative measures were ever employed.

The university of Turin has eleven medical and surgical professors. The number of medical students generally amounts to nearly 100. The medical practitioners of the kingdom of Sardinia are much divided as to the systems they pursue. The juniors, who have studied in Paris adhere in general to the doctrines of Broussais. Some of the seniors are still Brunonians; and, what is singular, the younger Rasori has fewer followers than might be expected.

The grand Duchy of Tuscany has one university at Pisa, and three medical academies, viz. at Florenz, Pistoia, and Sienna. In order to obtain a license to practise, the student must not only have attended an hospital in one of the above towns for seven years, but must have practised during that period under the direction of the clinical professor, and must finally submit to an examination. Even those who have taken the regular academical degree of M. D. elsewhere, must attend one of the Tus-

can hospitals for two years, before he is allowed to enter on private practice.

The academies at Pistoia and Sienna are too inconsiderable to claim attention. Our author therefore passes at once to the university of Pisa, which has nine medical and surgical professors. There is here, however, no school for teaching midwifery.

The university building is small and inconvenient; and contains a few lecture rooms, besides an anatomical and surgical theatre; but the latter is so badly lighted, that most of the operations are performed in the former.

The medical courses commence in November, and conclude in August. The students of medicine amount to about two hundred, of whom many are Greeks. Dr. Oppenheim had an opportunity of hearing one of the lectures on anatomy, and declares it was the worst he ever heard.

We shall give our author's account of the medical institutions at Pisa in his own words:—

“*Ospedale Santa Chiara è Casa de Trovatelli* contains 300 patients; the wards are clean, spacious and lofty. The medical and surgical patients, in this as in the other Italian hospitals, are not separated from each other, but lie in the same ward. There is a clinical ward, with twelve beds, for the treatment of medical cases, under the direction of professor Morelli; besides one for surgical cases, under the direction of professor Vacca Berlinghieri. The attention of these professors is not, however, confined to the clinical patients, for they make remarks upon every interesting case in the hospital. The surgeon's visit is made at seven in the morning, and the physician's at ten. The hospital pupils here, as in all the other Tuscan schools, wear a particular uniform, consisting of a red surtout and a white apron: as the domestics of the hospital are similarly dressed, they are scarcely distinguishable from the students.

“Professor Vacca Berlinghieri is extremely polite to strangers, and is very communicative upon professional subjects. I shall relate what I saw and heard while in his company. His method of lithotomy* is well known, from his three Memoirs on that subject. His success has undoubtedly been considerable; for, of twenty-nine patients upon whom he has operated, he has lost but two; and, of these, one was more than sixty-four years old. I saw two persons upon whom he had operated; one was a boy, four years old, who had been cut for the stone five days before. He seemed to be doing well, the greater part of his

* He opens into the bladder from the rectum.

urine being already voided through the urethra, while the wound was beginning to heal. The other was a very melancholy case of a young man, on whom the operation had been performed fourteen weeks previously to my visit. The stone had been broken in the first attempt to extract it, and the fragments were successively removed, great care being taken by the professor to leave no part of it in the bladder. He used injections and every other usual precaution; but nevertheless, and although the wound had assumed an healthy appearance, the patient complained of calculus pains on the twelfth day, when the professor discovered another piece of the stone in the bladder. In removing this he made no new incision, but merely dilated the original wound with his finger. This fresh irritation caused a violent inflammation of the parts, and the swollen part of the rectum, which had performed the office of a valve in preventing the fæces from entering the bladder, sloughed away, so that a fistulous opening was formed between the rectum and the bladder, and the urine was consequently evacuated partly per anum, and partly through a catheter introduced into the urethra. When the catheter was introduced only as far as the neck of the bladder, the urine flowing through it was mixed with fæcal matter: but, when it was pushed higher towards the fundus, the urine was natural. When I saw the patient he was less hectic than he had been, but still the fistulous opening into the rectum remained; its calibre was, however, diminished.

When this operation had been revived in France, by Sanson, and improved in Italy by Vacca, who merely makes an incision into the neck of the bladder, it excited much attention, and was practised by many French and Italian surgeons with considerable success. Scarpa, however, urged many objections against its safety, the most important of which was the danger of wounding the vesiculæ seminales. To this Vacca replied, by stating that, of eighty patients thus operated on, none had felt a diminution of their sexual powers. It is very remarkable that so celebrated a surgeon as Dupuytren should have so suddenly changed his opinion concerning the propriety of this operation. He now declares himself decidedly hostile to it, and yet, when I was in Paris in 1823, he was quite enthusiastic in its favour; for I heard him say, that the number of patients who suffer from a fistula after this operation, was not greater than that of those who died after any other!

“Calculous complaints are very rare in the neighbourhood of Pisa, and the majority of the cases operated on by Vacca come from Bologna, Genoa, and the Piedmontese countries, whose population subsist almost entirely on vegetable nutriment; a fact proving that the formation of stone does not depend upon a superabundance of nitrogen.

“Diseases of the large arteries are so unfrequent at Pisa, that there had been no operation there for aneurism during ten years.”

Dr. Oppenheim, however, saw at Pisa one case of popliteal aneurism in a healthy man. It is singular that Vacca refused in this case to perform the operation; alleging as a reason, that he believed the patient's blood possessed too little *plasticity*,* and the arterial coats had too much inclination to suffer from distention or rupture, to authorize a reasonable hope of successful termination. He could not assign any intelligible grounds for this opinion, which was, however, justified by the event; for another surgeon having performed the operation, hemorrhage took place on the third day, which was stopped by tying the femoral artery above the origin of the profunda. This resource proved also ineffectual; for a fresh hemorrhage occurred in three days after, and the patient died.

Dissection showed that all the coats of the artery had been divided by the ligatures, while no sufficient coagulum had been formed, and no attempt made towards the exudation of coagulable lymph.

What symptoms Vacca conceived to contra-indicate the operation in this case, we, as well as Dr. Oppenheim, are unable to guess:

“Fistula lachrymalis is a very frequent disease at Pavia, and Vacca has observed it occur in women more frequently than in men, in the proportion of seven to one. His operation consists in making an opening into the sac, with a small straight bistoury; he afterwards widens the sac with a fine silver probe, and introduces into the duct a bit of extremely fine catgut, having a silk thread fastened to its upper extremity, by means of which it is secured above. In the course of a few days, the lower end of the catgut is forced through the nostrils by blowing the nose; it is then drawn down and detached from the silk thread, to which he fixes a small dossil of charpie, and is thus enabled to introduce the latter, from below upwards, into the lachrymal sac. The advantage of this method is, that the dossil being introduced into the sac through the lower opening, the superior external opening need not be enlarged or stretched so as to render it liable to inflammation. Vacca insists upon the necessity of dividing the tendon of the orbicularis muscle in this operation, as a portion of the sac lies directly under this muscle, and of course cannot be touched with the necessary escharotics; and, if this be not done, he contends that this portion of the sac will remain in a state of inflammation, and will occasion a relapse of the dis-

* The probable meaning of this expression is, that the blood was deficient in coagulable lymph.

ease. In my opinion, the division of this tendon cannot be effected, without danger of also dividing the lachrymal duct.

“One of the most interesting cases I saw at Pisa, was an emphysema caused by fracture of the ribs on the right side of the thorax, together with injury of the pleura and lung, but without any external wound. The patient was brought to the hospital five days after the accident, when the emphysema was excessive, and had extended over the entire of neck, chest, abdomen, and scrotum. The patient felt very little pain, and was quite free from the usual symptoms, cough and expectoration of blood. He could lie on either side, but preferred lying on the uninjured side. His respiration was free, and he could make a deep inspiration without its causing uneasiness. The transverse fracture of the rib was quite evident on examination. This case is certainly extremely interesting, and seems inexplicable. Under other circumstances, it would have been necessary to make an immediate incision, but Vacca merely applied a few leeches, and the disease disappeared gradually.

“I saw here also a case of peculiar induration of the mammary glands, in a strong healthy woman, aged thirty, who had been but a few days in the hospital. Both breasts were equally affected, and were of a stony hardness; the indurated glands were movable, and the skin immediately covering them was very red, while in every other part of the breast it was quite natural as to colour. The temperature of the affected parts was elevated, and the nipples (as it were) pressed inwards. The woman said that the disease had commenced suddenly, and without any assignable cause, about seven years before, since which it had remained in the same state.

“In every other respect she felt herself remarkably well, did not feel any pain whatsoever in the breasts, and had no disorder of the digestive organs. There was no suspicion of syphilis, and the malady bore not the least resemblance to schirrus; for *both* of the mammary glands were attacked at the same time, their temperature was increased, and the skin red. This disease, too, had remained nearly stationary from the time of its first origin; and in its form the swelling did not at all resemble schirrus, being destitute of the notty elevations and inequalities so peculiar to that affection. The axillary glands were quite healthy.

“Vacca treated this disease as a case of chronic inflammation. He commenced with a venesection, the woman's constitution being very strong; and he afterwards applied leeches to the part, and cloths moistened with aqua laurocerasi. I saw this treatment continued for three days, without effect.

“The operation of trepanning, which I never saw performed in France, and but once in England, during a very diligent attendance on the hospitals in both these countries, is by no means

of rare occurrence at Pavia. Neither are its results, on the whole, unfavourable. In two cases, a perforation was made through the mastoid process, for the purpose of giving exit to matter formed in its cells, in consequence of otitis.

“ Vacca has lately abandoned an operation he was formerly in the habit of performing frequently; I mean tying the saphena vein in cases of varix and varicose ulcers. The success of this practice was for a time considerable, but cases afterwards occurred in which dangerous symptoms were occasioned, such as violent inflammation of the vein. In a few instances this inflammation proved fatal.”

Dr. Oppenheim observes, that an operation occasionally attended with such dangerous consequences, ought never to be undertaken for the relief of a complaint in itself destitute of danger.

We subscribe most willingly to this opinion, having ourselves learned from an extensive experience the uncertain issue of tying the saphena vein. One case we shall not easily forget. A young person, otherwise enjoying perfect health, was admitted into an hospital in order to undergo this operation. It was performed. Inflammation of the venous system supervened, and the patient died in a few days. For further information on this subject, see Hodgson on Diseases of the Veins and Arteries; Mr. Carmichael on Varix and Venous Inflammation; Dublin Hospital Reports, vol. ii.; and an excellent article on *Varices*, in the Dictionnaire des Sciences Medicales.

Florence.—Population, 80,000.

There are two hospitals, besides a foundling hospital.

1. *Spedale de Santa Maria Nuova*, capable of containing twelve hundred patients, but Dr. Oppenheim found in it only six hundred in April, 1824. The wards are large and lofty. The lower wards are in the form of a cross, and contain from one hundred and fifty to two hundred beds. They are badly ventilated, and uncleanly. Six physicians and six surgeons are attached to this institution, and attend in rotation, each for one month. Dr. Oppenheim blames this practice, as subjecting the patients to a constant change of treatment. The clinical wards of this hospital contains fifty beds; and, what is remarkable, almost all the operations are performed by the pupils,—of course, however, in the presence of the professors. Dr. Oppenheim saw here many cases of compound fracture, which were treated according to Dupuytren's method. He saw a case of medullary sarcoma affecting the testicles: castration was performed, but in five days a new fungous growth began to arise from the wound.

“ Another melancholy picture was presented, by a case of fungus of the antrum highmorianum, which had forced its way into the mouth. Indeed, I do not think I ever witnessed an hospital containing so many desperate diseases, such as hopeless

cases of morbus coxarius, cancer, and abscesses, attended with confirmed hectic. Fistula lachrymalis is here also common; and I had an opportunity of seeing some cases of suppuration within the substance of the mastoid process, one of which proved fatal, from caries and effusion of matter in the dura mater. It was attended with symptoms of cerebral compression.

Scrofula in all its forms, such as tubercular phthisis, caries of the bones, &c. is not less frequent here than at Pisa. The Italians administer occasionally muriate of barytes in this affection, and Vacca often sends his scrofulous patients to the sea for the benefit of bathing.

The operation for cataract, employed both at Florence and Pisa, is depression or else reclinatio, the needle being introduced through the sclerotica.

2. *Ospedale de St. Bonaficio*, destined for the reception of lunatics, incurables, and those afflicted with cutaneous complaints, is capable of containing one thousand patients. The lunatics are here much better treated than at Pisa or Genoa: they are never chained, but are subjected to much milder modes of coercion, such as the strait waistcoat. Dark rooms, having the walls lined with padding to prevent the patients from injuring themselves, are used for the confinement of persons during the accession of the maniacal paroxysm. There is no care taken to provide amusements or employment for the patients, and, on the whole, their *moral treatment* is entirely neglected; so that Dr. O. justly remarks, it ought to be called an *asylum*, not an *hospital*, for lunatics, the latter name implying the application of proper curative means. The consequence of this neglect is, that a cure is scarcely ever heard of.

Foundling Hospital.—A well-managed institution, which receives annually from fifteen hundred to eighteen hundred infants. They are well taken care of, and remain one year in the house, after which they are sent to the country. The bedsteads are iron, and each contains four separate divisions, in which are placed our children's beds. This arrangement facilitates the attendance of the nurses upon the children.

“The diseases observed among the foundlings are not numerous. Inflammation or blenorrhœa of the eyes is uncommon, a circumstance probably owing to the exclusion of a glaring light from the wards, and to their cleanliness and proper ventilation. Jaundice, and induration of the cellular membrane, are quite unknown here. A great number of children are said to fall a sacrifice to syphilis. When brought into the house, they are apparently healthy, but in the course of a few weeks, or even days, they become pale and thin, cry or rather *whimper* much, get an appearance of old age in the face, and often become covered, about the genitals, anus, &c. with pustules and small ulcers; they grow

cachectic, and finally die in a state of marasmus. The exhibition of mercury in this affection is found to be quite useless. I myself concur in the opinion of Dr. Breschet, of Paris, who has observed a similar complaint among the infants in *l' Hospital des Enfants trouves*, but does not conceive it to depend upon syphilitic taint. His observations render it probable that it arises from an insidious inflammation of the abdominal viscera; a view of the subject confirmed by the diminution in its mortality, since a mode of practice founded on this view has been adopted.

A small *lying-in hospital*, containing six beds, erected for the instruction of the Tuscan midwives, is connected with the Foundling Hospital. In order to obtain a license to practise midwifery, the females must attend three courses of lectures on that subject; besides which, they must reside eighteen months in the institution. The anatomy of the female pelvis is taught by means of beautiful wax models, which can be taken to pieces.

Puerperal fever is rare at Florence. On an average, twins occur five times in the hundred. The cæsarean operation has been performed twice there, and in both cases was unsuccessful. The midwifery practice seems on the whole judicious, and the accoucheurs are not addicted to the unnecessary use of instruments in delivery. Professor Bigeschi speaks highly of the ergot, as a means of forwarding the progress of labour in tedious cases.

“ I must not omit mentioning the celebrated Florentine wax-works, which exceed the Vienna collection, not only in number, but in execution and anatomical accuracy. What has been added lately is inferior to the old collection, especially in the colouring. I shall never forget my astonishment at seeing a representation of the distribution of the fifth pair of nerves. It left nothing to be wished for, and had every branch described by a Bock or a Meckel. In fact, on examining it, you could not determine which was the more to be admired,—the anatomist who made the dissection, or the artist who made the model. The late Professor Ucelli, who was not only an able anatomist, but an expert artist, enriched this collection with many beautiful specimens in comparative anatomy, well worthy of a minute examination. The imitations of plants, fruits, &c. are not less elegantly executed; but this part of the collection loses its value, from the circumstances that the objects represented are indigenous in Italy; and we do not find any imitations of rare or tropical plants.

“ I did not observe so great a number of blind people in any Italian city as in Florence. Every good begging station in this city is occupied by a blind beggar, and those stations descend by hereditary right, from one generation to another. How great the profits of these beggars must be, appears from the answer

of a young man, when asked how it happened that he could afford to marry:—"Thank God I have a blind father; therefore, as long as he lives, I shall never want." In general, these blind beggars are attended by stout young men, so that the proper order of things is reversed; for he who can neither see nor work supports him who can do both!

• Here I cannot omit adverting to another custom, prevalent not only in Florence, but in the other Italian cities, and which must necessarily exercise an injurious influence on the state of the medical profession. The apothecary's shop is the physician's rendezvous; for his messages are left, not at his own house, but at the shop of the apothecary whom he patronises or who patronises him.

• The Italians do not understand the comfort of the expression "at home," like us Germans, but spend all their leisure hours in the open air, in the street, and engaged in the "*dolee far niente*." The first thing the Italian practitioner does in the morning, is to hurry to his apothecary's shop, for the purpose of learning what orders have been left for him. Meetings are held by physicians, and appointments made at the shop of the apothecary; and there the young physician, who is looking for practice, *must* loiter away his days: I say *must*, for, if he does not do so, he will not succeed. Every stranger, who is in want of a physician, sends for one to the apothecary; and every one who has no family physician, does the same. The *understanding* relative to their mutual interest, which arises from this singular connexion between these branches of the profession, must prove injurious to the patient, at least so far as it increases the probability of his being made to swallow medicine, more with the view of increasing the bill, than of restoring his health. This custom evidently degrades the physician, by making him a sort of creature of the apothecary, and likewise occasions a most serious loss of time, just at that period of life when his time is most valuable."

The Papal Dominion.—There are two medical schools in the dominions of the Pope,—viz. one at Bologna, and one at Rome.

Rome.—The university at Rome is named *Della Sapienza*, and has fourteen medical professorships. This university has no museum whatsoever.

The medical clinic is in the *Ospedale di St. Spirito*, where practical anatomy is also taught. The surgical clinic is in the hospital at *St. Giacomo in Angustia*. There is no institution for the instruction of accoucheurs. The internal arrangement of the Roman hospitals is so peculiar that it deserves particular notice. They are altogether ecclesiastical institutions, formed according to the notions of churchmen, and destined to serve rather as asylums for the administration of spiritual consolation

than for the cure of diseases. Accordingly, the physicians and surgeons are persons but of secondary importance in a Roman hospital, while the priests and confessors enjoy the chief authority! They alone are the resident officers; to them the admission of a new patient is first communicated; and they administer the first remedies, confession and the sacrament. Chance must decide upon the remaining part of the cure; for, after having taken care of the soul, they concern not themselves about the cure of the body! The hospitals are small, but on the whole rather clean. The bedsteads are generally made of iron, some with and some without curtains. Some of these hospitals are situated in the most unhealthy parts of the city. They are nine in number, and altogether contain about two thousand beds. In some there are separate wards for consumptive patients; for the opinion that consumption is contagious, is universal in Italy. In the lunatic asylum are four hundred patients, on whom the whip and the chain are not spared! Some of the hospitals cannot be visited by strangers, except permission has been granted by the Pope, a favour of which his holiness seems to be very sparing. All the convalescents from the different hospitals are brought to that of the *Holy Trinity*, for the purpose of enjoying the benefit of a nutritious diet. Dr. Oppenheim finds fault with this arrangement; and we agree with him in thinking that the convalescents might be well fed in the different hospitals, without going to the trouble of removing them to this general convalescent hospital, where, after all, they are only permitted to remain three days!

The diseases of every nation are necessarily much influenced by the customs and domestic habits of the people, and the nature of the climate. He who has not been an eye-witness of it, cannot form any idea of the uncleanness prevalent in the south of Italy. The stranger, on his first arrival at Rome, is amazed at seeing whole groups of people, "*gruppi dei otiosi*," consisting of fathers, mothers, children, and friends of the family, all employed in performing for each other an office which we shall not name. Suffice it to say, they use their fingers for purposes elsewhere performed with combs! this custom is so general, that it has, as a matter of course, occupied the pencil of the artist; and, in the magnificent collection of pictures at Florence, is one in which Venus is seen thus elegantly employed on the head of Cupid! So much are the inhabitants accustomed to sleep two in one bed, that, when two strangers arrive at a country inn, and require two beds, their demand is considered unreasonable. The peasants of Rome and Naples look upon washing and cleansing the skin as quite unnecessary; and the upper ranks are not less negligent of the bath, than the ancient Romans were attached to its use. The great number of church holidays serves, indeed, in a certain degree, to keep the city from utter filth; for the

streets through which the religious processions are to pass must be previously swept.

In so warm a climate, this utter neglect of cleanliness necessarily produces an abundance of cutaneous complaints; and accordingly the hospital *Della St. Maria*, containing four hundred beds, is insufficient for the accommodation of patients so afflicted. *Tinea capitis* is treated in this hospital in the following singular manner:—The head is first smeared with butter, for the purpose of softening the scabs. When the scabs are removed, the head is shaved, and all the roots of the hair pulled out with a broad tweezers. The next step is to make forty or fifty incisions in the scalp with a razor. The free flow of blood from these incisions is favoured by making the child sneeze. The head is finally washed with cold water, and then rubbed with rancid oil. This *cutting* and *plucking* is repeated every four or five days, as fast as the hair begins to appear. This *cure*, which they commend for being *simple* and *radical*, lasts generally for six or eight months, and in obstinate cases for one or two years!

Vaccination is again much neglected under the present Pope, and of course small-pox is on the increase. There were about seventy small-pox patients in the hospital at the time of Dr. Oppenheim's visit.

We shall not enter into the sources of the "*aria cattiva*," which renders Rome so unhealthy, but merely remark, for the benefit of such of our readers as may intend to visit that city, that its influence is most severely felt during the months of June, July, August and September. The miasma produces, besides common agues, a very fatal species of fever, which is termed the malignant ague. The patient becomes at once weary and weak, complaining of heaviness of his limbs, heat of skin, dull headach, and confusion of ideas, &c. The looks are wild, the face oftener pale than red; and, even when it is flushed, a yellowish white tinge is perceptible near the angles of the mouth. The belly is often tender to the touch, and the right hypochondrium swollen. The patient is sometimes costive, but not unfrequently diarrhoea is present from the beginning. Enough has been related to place it beyond doubt that this fever, at its commencement, is of a gastric character, and is attended with an inflammatory affection of the liver. After the above symptoms have continued for some time, the fit commences with a violent rigor, which is followed, in an inconceivably short space of time, with a general and excessive disturbance of the whole nervous system; picking the bed-clothes, subsultus tendinum, the most violent delirium, and a low muttering sort of raving, succeed each other rapidly, and without any apparent regularity. In short, the disease at one moment wears the aspect of a fever attended with excitement, and at the next has all the characters of typhus

in its latter stages; and these two forms, alternating with each other, seem, if it were possible, combined in the same patient. After the fit, the patient feels a greater degree of depression than before. Vomiting often comes on at the height, or towards the end, of the paroxysm. The second fit commences five or six hours after the first; and the third begins after an intermission of about the same duration, unless, indeed, (which not unfrequently happens,) death has already closed the scene. *The third fit is always fatal!* Peruvian bark, exhibited in the largest possible doses, is the "*sacra ancora*" on which the Roman physicians place all their hopes. During the fit, blisters and sinapisms are applied to the extremities, while the head is assiduously cooled by means of cloths dipped in cold water. The instant the first fit has ceased, bark is given, and that with the greatest possible diligence, as they do not know the moment a second fit may commence. It is always a favourable symptom that the "patient bears the bark well, but it too often happens that the stomach immediately rejects it. When this is not the case, four, or even six, ounces of bark are exhibited in the course of the day. The second fit is then so much diminished in violence, that its accession causes but little disturbance, and the patient is saved. The progress of this disease is most rapid in strong, robust, and plethoric habits. Relapses also frequently occur. In 1825, the proportion of recoveries to deaths was as eighty-five to fifteen; in other years, it has been as eighty to twenty. All other remedies have proved ineffectual in this fatal disorder. Venesection, emetics, opium, &c. seemed only to hasten its fatal termination, so that the physicians now place no dependance upon any thing except bark, which is used in immense quantities at Rome. The quantity used in the *Ospedale St. Spirito* often amounts daily to forty or fifty pounds."

The latter statement of our author, we cannot help observing, accords ill with his previous sweeping censure, concerning the inattention prevalent in the Roman hospitals with regard to the *bodily complaints of the patients*.

Some successful trials had been made at Rome with the sulphate of quinine, both in this fatal and in the common forms of ague. When there are symptoms of a deranged state of the alimentary canal, the Romans place no reliance on emetics, but cleanse the *primæ viæ* with one drop of croton oil, previously to exhibiting the bark.

The following rules are laid down by the Roman physicians, for strangers who remain at Rome during the sickly season:— They must get up at six o'clock, and, having made a light breakfast, on biscuits, coffee, &c. they may go about their business until after eleven. At one o'clock they dine, and ought to sleep for a few hours after dinner. It is reckoned dangerous to be

out at noon, sunrise, or sunset. Two hours after sunset, a walk is recommended; after which a slight supper may be taken. At twelve they ought to go to bed, and should sleep with but little bed-clothes. The windows of the bed-room should be kept shut during the night. Strangers are likewise recommended to indulge in cool drinks, and to be very abstemious with regard to wine, which ought to be diluted with water.

“Phthisis is not common at Rome, and its introduction has been attributed to the English! for it is universally believed to be contagious. When a consumptive patient dies, his clothes, furniture, and bed, are always burned. There exists, too, a Papal Bull, prohibiting the sale of such articles. Srofula is not uncommon at Rome, and calculous complaints are of rather frequent occurrence. Professor Sisco, who has performed the operation of lithotomy on more than fifty patients, follows the method recommended by Cheselden,—i. e. the lateral operation: his success has been considerable, and he objects in strong language to the recto-vesical operation of Vacca. The Roman surgeons boast of great success in strangulated hernia. Sisco never tries to heal the wound by the first intention, because he considers the cure by suppuration as the only radical one, as it produces a complete solidification of the parts, and thus prevents the necessity of afterwards wearing a truss.

Aneurisms are not common in Rome; their cure is generally attempted according to Vansalva's method. The Roman surgeons *have hitherto never ventured to tie the artery in this disease, but always proceed at once to amputation when Vansalva's method fails!* and yet Rome is scarcely three days' journey from the residence of Scarpa!

In syphilis, mercury is now used both externally and internally. Buboes are never permitted to burst spontaneously; they are always opened with the lancet.

The doctrine of contra-stimulus has fewer advocates in Rome than in any other Italian city.

Bologna has sixty thousand inhabitants; an university, two civil hospitals, an orphan-house, and a work-house. *Spedala della Vita* contains about five hundred beds; the wards are spacious, well ventilated and clean. Professors Comelli and Tommasini superintend the medical clinic, and Professor Venturoli the surgical. It is unnecessary for me to detail the medical practice in vogue here, as it is generally known, and the doctrines of contra-stimulus are already sufficiently familiar to the medical world, through the medium of a journal published in Bologna, under the title “*Giornali della nuova Dottrina Medica Italiana.*” Without discussing the merits or demerits of this doctrine, I may, however, remark, that the very large doses of medicines which its advocates are in the habit of exhibiting, have

universally the effect of rendering the system so difficult to be acted on, that the doses must be constantly increased, in order to produce any effects. Thus, I saw a man under treatment for abdominal disease, on whose bowels half-a-drachm of jalap, and four ounces of castor-oil, had not the least effect, until their action was assisted by a purgative enema! We pass by the other hospitals, as affording nothing worthy of remark, except that their internal economy seems better regulated than that of other Italian hospitals.

The university reckons about six hundred students. It is large and beautifully built, and contains not only a good museum of natural history, but a tolerable anatomical collection. The preparations with which it has been enriched by the present professor of anatomy, Mandini, are very fine; as are also those made by Professor Quadri, who formerly taught here, but now resides at Naples. In the wax-works I was much struck by the beauty of the pieces representing the muscles: they are the works of Lelli and Madame Penarolini. The library contains about 150,000 volumes. The librarian, Professor Mezzofanti, is distinguished in the literary world by his uncommon talent for languages. The Botanical Garden is the best I saw in Italy.

The Kingdom of Naples.—A glance at the state of general literature in Naples, will best explain the state of medical science in that city. All foreign books, even those which have received the sanction of the Roman censors, are subjected to the revision of the Neapolitan censors. If, after a scrupulous examination, nothing is detected unfavourable to the king or church, the publication of the book is permitted, and a tax of four carolines on each volume must be paid by the publisher; this sum is exorbitant, when we consider the cheapness of Italian books. So heavy a tax is likewise imposed upon public prints, that it amounts to a prohibition of all foreign journals. These regulations render the advancement of science so slow in Naples, that what has long since become obsolete in other countries is there considered as a literary novelty. The Neapolitan physicians find it, therefore, impossible to keep up with the modern improvements in medicine, and consequently their practice is formed on antiquated models. Luckily for the inhabitants, the climate is so mild, that they seldom stand in need of medical aid, and may in general leave their complaints to the cure of the *vis medicatrix naturæ*. Little can be expected from an university in such a country, even though it boasts of such men as Vulpes, Quadri, and Lanza. The hospital accommodation, too, at Naples, is quite disproportioned to the number of the inhabitants, which amounts to 450,000.

Dr. Oppenheim then proceeds at some length to describe the *Lunatic Asylum* at Aversa, a small town, situated eight miles

from Naples, on the road to Capua. This institution excels, indeed, all others in Italy, but still falls far short of similar institutions in England and Germany. The only peculiarity we think worth relating, arises from the habits and genius of the Neapolitan people. In English mad-houses, much reliance is placed in affording means of employing or amusing the convalescents. With this view, we provide the lower classes with the means of following their ordinary trades and occupations, while we offer to the rich the recreation of cultivating a garden, or reading in a library. At Aversa, what are the objects of amusement? Billiard tables, music, various petty national games, puppet-shows of all descriptions, and a variety of toys!

We would almost believe its inmates to be boys, not men: but men it seems they are, at least in Naples, where even the upper classes spend the whole day in the coffee-houses or at the theatre, while the lower orders visit the puppet-show at seven o'clock in the morning, after which they dance the "tarantala," and play the "morra." This systematic trifling and habitual idleness afford a sufficient excuse for the indignation of the priest described in Kelly's Memoirs, who having dispersed a crowd of Lazaroni assembled around a puppet-show, held up the crucifix with which he had dealt his blows, and cried "*Ecco il vero Polcinello*;" an exclamation which at first appears ridiculous, if not impious, but really conveys a most degrading idea of the people whom he addressed.

The Lombard State forms at present a province of Austria, and the constitution of the two universities it possesses is modelled entirely according to the plan of that of Vienna. A certain course of study, which lasts for five years, is laid down, and no deviation from this plan is permitted. The disadvantages of a restrictive plan of study, which assimilates an university to a great school, are too obvious to require comment; and we cannot therefore help regretting, with Dr. O., that it should have been lately introduced into France. Our regret is increased by observing that this plan does not include a branch of medical study, to which we owe our chief progress in anatomy and physiology, and to whose aid we are to look for important additions to pathology,—we mean comparative anatomy. When (says Dr. O.) we find so important an omission, we must indulge in gloomy anticipations concerning the future progress of science in a state which was formerly so distinguished in comparative anatomy, and produced such men as Spallanzani, Valsava, Lancisi, &c.

Padua, a town with twenty thousand inhabitants, has one spacious hospital capable of holding three hundred patients. The wards are clean and well ventilated, and the beds are placed at a sufficient distance from each other. The clinical wards con-

tain twenty-four beds. The medical department is superintended by Professor Brera; the surgical by Professor Ruggieri. The university reckons about seven hundred students. The building is very beautiful, and originally a palace, planned by Palladio. The cabinet of natural history is tolerable. Fabricius ab Aquapendente, Prosper Alpinus, Morgagni, and other celebrated men, once ornamented this school. Brera, the present professor of the practice of physic, is a zealous advocate of the system of contra-stimulus, and of course propagates this doctrine among his pupils. It has, however, found fewer advocates among the private practitioners at Padua, than among those at Bologna.

Pavia has twenty-two thousand inhabitants. The town hospital is well situated and very roomy, and contains four hundred beds. It is better calculated for the purposes of an hospital than any other institution in Italy, having been originally built for the accommodation of the sick, and not, like the rest, for a monastery or a palace. There are four clinical wards, viz. one for medicine, one for surgery, one for diseases of the eye, and one (as the catalogue has it) "*per la istruzione di maestri in chirurgia e flebotomia*." Connected with the hospital is a small institution for lying-in women.

The university is attended by about four hundred students. The building is large, and the architecture fine. No university in Italy can boast of such rich cabinets of natural philosophy, chemistry, natural history, and anatomy. The latter, commenced by Rezia, received many valuable additions from the celebrated Scarpa, lately a professor at Pavia. Burserius, Tissot, and the two Franks, formerly taught at Pavia.

ANATOMY.

Dr. Barclay on the Eyes.—The author (whose opinions on anatomical and physiological subjects are of great value) has published an interesting paper in the Edinburgh Journal of Medical Science, from which the following is an extract:—

"The orbits, in man, are situate in the forehead, on each side of the nose, and at a distance so small, that both eyes may sometimes be directed to the same object, if placed before them in a space intermediate, and not too near. As the forms of the head, however, the forms of the neck, trunk, and extremities, are different in different genera of animals, with motions at the same time suited to their instincts, habits, and circumstances, we should not be surprised to see organs of vision varying in form, position, magnitude, and number, to accomplish all the variety of purposes for which they are intended.

“ If two eyes, therefore, with varieties of motion and other advantages, be perfectly sufficient for the human individual in ordinary situations, even several thousands may not be more than necessary in those animals where the eyes are fixed, and where the position cannot so readily admit of a change. To illustrate my meaning still farther, let us take the human eye as the standard, and compare it with the eyes of quadrupeds, birds, insects, and some other animals, and try to ascertain in what cases, and for what purposes, they differ in form, position and number, and also in relation to structure and capacity for motion.

“ In the first place, the human eye is almost completely surrounded with the bones that compose the orbit, excepting near the pupil, where the light is admitted. Within the orbit are seven muscles; one for the motions of the upper eyelid, to open it when required; and one externally spread over the eyelids, to shut them instinctively when we fall asleep. Six muscles, inserted in the eyeball, are entirely within the orbit; four of these have their origin in the bottom of the orbit; around the sides of the foramen opticum, and are called straight muscles; the remaining two are termed oblique, distinguished by the epithets superior and inferior. The superior oblique rises, with the four preceding, at the side of the foramen opticum, and running forward, passes through a pulley, then across the eyeball, towards the temporal side of the eyeball, to be inserted into the sclerotic coat, not far from the cornea. The inferior oblique commences at the forepart of the orbit, runs at first towards the temporal side also, and, bending a little to the nasal side, is inserted opposite to the superior oblique, to roll the eye in an opposite direction. Four of the six muscles arising from the sides of the foramen opticum, and proceeding more directly to the place of their insertion, are termed straight muscles, in contradistinction to the oblique: one of them, inserted in the upper part, is called the levator of the eye; its antagonist, on the opposite side, is named the depressor; the one inserted on the nasal side is the adductor, and the one on the temporal side the abductor. These four muscles, considering the place of their origin, would naturally draw the eyes backwards, into the bottom of the orbit, were they not opposed by the soft substance in which they are imbedded, and by the action of the two oblique, which have a tendency to draw them in an opposite direction. At any rate, the change of place, or the locomotion of the whole eye, is not very perceptible. We can distinctly observe the pupil moving upwards and downwards, between the levator and the depressor, as it were, upon an axis, extending from the nasal to the temporal side of the orbit; and we see it moving from right to left, as it were, upon an axis; extending from above downwards, and also rolling between right and left, as it were, upon an axis, ex-

tending from the bottom of the orbit towards the cornea. From this we are led to suppose, that these three axis pass through the eye near its central part, and that any change of position in the whole body of the eye is thus rendered unnecessary.

“Observing that the pupil can point upwards and downwards, to the right and the left, without any motion of the orbit, or, while the orbit is in motion, point as steadily to the object which it is examining, as the needle to the pole—it follows, that the eye moves not only in the orbit, but that the orbit also moves round the eye; as we may observe when looking steadily at a lighted candle, and moving the head upward and downward, to the right and to the left, and yet the pupil all the while pointing steadily to its object. These motions, however, have certain limitations; when we wish to increase the sphere of vision, we employ occasionally the muscles of the neck in moving the head upwards and downwards, or turning the face to the right and the left, by its rotatory muscles.

“When the muscles of the eyes, of the head, and of the neck, are found insufficient to direct the pupil to every part in the whole circumference of the horizon, we can turn round on the heads of the femora, and see every point, behind and before, without changing the spot upon which we stand, and instinctively dilate or contract the pupils to regulate the quantity of the rays of light that may be deemed necessary for distinct vision.

SURGERY.

4. *Richter on Bronchotomy.*—There are two classes of writers, between which the attention of practical men may be profitably divided.

The first consists of such as have diligently observed and faithfully reported the facts they have met with. Good sense, industry, and fidelity, are the only qualifications required in such writers, and as long as the profession is cultivated with success such will abound; since, on the one hand, the materials for the improvement of medical science can be found only in the accumulation of facts confirmed by multiplied and varied observation; and since, on the other, every improvement *thus* made, begets (as *real* improvement always does) an increase of esteem for observation and experiment, and an increase of talent and industry in their prosecution.

The second class of writers to which we allude must be always more limited in number, though of a higher character. It includes only men endowed with pre-eminent talents, who have enjoyed the best advantages of education, who have had superior

opportunities of practice, and who have reaped the fruit of these during a lengthened experience. Such men are the lights of the profession, serving to guide us through the intricacies which false instruction, and the natural obscurity of the subjects of medical research, have combined to multiply around us.

It is the office of men qualified as we have described, to arrange the facts which minor contributors have furnished; to compare them with the results of their own more enlarged and discriminate observation; and thus to establish their import and relative value, winnowing false from true, with that tact and discrimination which is the result neither of talent nor experience singly, but of both combined. It is for such masters in the art to view with a comprehensive mind the lines of evidence, as they run apparently counter to each other; and to deduce from them those fundamental practical truths, which accord at once with just physiological reasoning and the results of multiplied experiment.

As men who answer the character we have endeavoured to describe, we number, in our own country, Abernethy, Cooper, Hey; and Richter, in Germany, certainly ranks in the same class; and he has given us (as it is highly desirable every such man should) a systematic view of the rules which guided him to success and usefulness throughout a long and extensive practice. His principles of surgery, perhaps, on the whole, the best and most complete systematic work extant, on the subject, in any language, has been thought worth translating into French—though it must be allowed that language is by no means deficient in original surgical literature. But whether from the prejudice, the narrow and illiberal prejudice, which certainly did, (we will not say does yet) prevail against foreign surgeons, or from some other causes, few indeed of their writings, especially few of the Germans, have appeared in English; and Richter still remains inaccessible to the generality of the profession. It is not the least merit of foreign medical literature, that it abounds in works methodically and systematically arranged—an excellence which writers in this country are too much disposed to undervalue.

It is true that attempts at systematic arrangement have often given occasion to writers, of little sense, for the display of useless distinction and mock acuteness; and the most ridiculous specimens of this kind of pedantry are not uncommon:—but this is the abuse of methodical order; its advantages when used judiciously are obvious and important: it ensures *completeness and facility in reference*, both most necessary qualifications of works intended either for elementary instruction or consultation on emergencies.

We have read books and heard courses of lectures, which, though excellent, in general were partial, and inadequate to the

fulfilment of their purpose, merely because—for want of method—they passed by *some things*, which, though comparatively small, are yet absolutely necessary to be learned: or, because for the same want of arrangement, what they did teach could not be found with readiness on the emergency which required its use. We submit it to the consideration of authors and lecturers, whether a greater attention to arrangement than is common with us in England, would not greatly enhance the value and utility of their labours.

The plan of Richter's work, which has rendered it so complete and so well adapted for reference, is a recommendation of its merits which ought not to be overlooked; and the execution of the whole is such as to vindicate his claim to the honourable epithet of 'the judicious,' so generally bestowed upon him. We offer these reasons for presenting our readers with an abstract of the most interesting parts of his work, and a comparison of his surgical opinions with those of the most eminent surgeons of our own country.

We begin with the diseases of the head and neck; and of the surgical subjects which fall under this head; we select that which is inferior to none perhaps in importance, viz. *Bronchotomy*. The chapter which has this title in Richter's work includes not only the operation itself, but the general history and treatment of the cases which require it. The operation of bronchotomy is but rarely performed, although the cases which require it are so frequently occurring; whence does this arise? generally from the mere ignorance or unpreparedness of the surgeon, who cannot perform it; or if the case be under the care of a physician, to his folly, who will not have it performed; for, to the reproach of multitudes of physicians, or rather, perhaps, to the reproach of the education they receive, be it said that they are perpetually undervaluing or traducing the resources of surgery, because they know nothing of them.

The rare performance of this operation cannot be justly ascribed to its difficulty or danger, for it will be presently shown that in the hands of a moderately instructed surgeon, it is both easy and safe in general; and were it indeed considerably dangerous, this would not be a reason for declining it in the majority of cases in which it is recommended, since, in these, death without it is little less than certain. The operation is to the instructed surgeon easy—it is safe—it is life-giving; why then is it not done so often as it should be?—The explanation is, that this operation, like that for hernia, the securing large arteries, and a few others, requires *prompt* performance, affords little time for consideration or consultation, and none for the renewal of anatomical knowledge. The surgeon is called on, to act, generally by himself and for himself, and unless he has that decision

of character and confidence, which, if he is not *entirely* ignorant, and therefore rash, he cannot obtain but by being *entirely* master of the business he is called to. Unless he has *confidence, founded on knowledge*, he will neither dare to attempt nor be able to perform his duty. We have known surgeons in the country defer the operation for hernia until it was useless; and then, if they were not allowed altogether to omit it, the event of a bungling endeavour to perform it could be excused on the ground of the patient's state at the time of operation.

If they were to operate at all, they were careful first to let the patient sink into that state which should save them the shame of *appearing* to kill him, however really and effectually they might do so; and all this not from cruelty, not from inhumanity, but because they were reluctant to engage in an undertaking for which they had not previously prepared themselves. Thus it is often with the operation of bronchotomy; and it claims the attention of the surgeon, not only on the ground of its general importance, but especially on this ground, that the life of a fellow-creature may depend on his readiness to perform the operation at a time when he least expects to be called to it, and when he cannot add any thing to the qualifications with which he may have prepared himself in the course of his general education. The objects in view in the operation are:

1st. The formation of an artificial passage for air, when the natural passages through the mouth and nose, or larynx, are obstructed; and

2d. The removal of foreign bodies from the air passages. Richter's experience had taught him that, under every variety of circumstance, the operation was calculated to fulfil these indications; and to its facility and safety he bears most decided testimony. The operation is employed with the view of affording an artificial passage for air chiefly in the following cases:—

1st. In *Cynanche Laryngea* (or as Richter has it, *Angina Inflammatoire à Laryngea*), and more rarely in *Cynanche Tonsillaris* the first of these diseases has attracted much attention in this country, within the last few years*, and the efficacy which Richter ascribes to the operation in this case is confirmed by the experience of English surgeons. It is an important remark of Richter's, that in this disease the operation must not be employed merely as a last resource, "because," he observes, "that every inflammatory affection (whatever be its original seat,) which is accompanied by long continued difficulty of breathing, is very

* See papers by Dr. Baillie and Dr. Farre, in 3d vol. of Med. Chir. Trans.—by Dr. Roberts, and Sir G. Blane, and Mr. Lawrence on affections of the Larynx, in 6th vol. of the same; and for the diagnosis, see particularly the appendix to Dr. Farre's paper.

easily succeeded by inflammation of the lungs, and this often proves fatal, though the symptoms of the original disease may have been relieved."

This tendency to inflammation of the lungs in such cases, is not, perhaps, well understood; we can scarcely attribute it to the mere laborious exercise of their functions, caused by the straitening of the glottis, for many asthmatic patients endure long the most distressing dyspnœa without any inflammatory affection of the lungs; and it is only when dyspnœa depends on *inflammatory* disease that it produces pneumonia. This difference between the consequences of difficult respiration in spasmodic and inflammatory diseases, might be attributed to the *disposing* influence of the febrile state accompanying the latter, but we are not aware that this view admits of proof.

We may often illustrate, and in some degree establish, the import of facts which we cannot fully explain, by comparing and classing them with others of similar character, and by referring to that more general fact on which they seem all to depend.

And if we set aside that explanation to which we have alluded, as attributing inflammation of the lungs following that of the larynx, to laborious respiration under the disposing influence of febrile excitement, then the case will remain quite analogous with that of acute hydrocephalus succeeding inflammation in the abdomen, or that of cynanche tonsillaris, alternating with pneumonia. Of both these cases we have seen instances; and facts of a similar character are numerous. The whole, we apprehend, may be referred to the general fact which the observations of Dr. Wilson Philip seem to have established, viz., that sympathetic irritation, whether connected with similarity of function between the parts concerned or not, is a frequent cause of inflammation.

One of the most remarkable instances of this kind, to which he alludes, is inflammation following the sympathetic pain connected with hepatitis. And we should be disposed to regard the connexion between inflammations of the lungs and that of the larynx, when the one succeeds the other, as precisely of the same nature; without, however, denying the probability, that the disturbed respiration and the febrile excitement, may together have some influence.

We should not have allowed ourselves this digression from the subject immediately under consideration, were it not for the purpose of adverting to an important pathological truth, and of giving an instance in confirmation of it. The consideration that mere sympathetic irritation may, if long continued and violent, induce inflammation, deserves to be borne in mind by the practitioner, both in his diagnosis and treatment.

In the treatment then of cynanche laryngea, it is necessary to

remember the fact, (explain it as we may) that this disease may be succeeded at a very early period by inflammation of the lungs. To this argument for the early performance of bronchotomy, may be added, that we have less reason to expect success from the general treatment of inflammation in this case than in most others. Mr. Lawrence mentions, as the result of his observations, "that local and general bleeding, blisters, and the various internal means are usually inefficacious."—See the excellent paper already referred to, Vol. V. of *Med. Chir. Trans.*, p. 248. That the operation, when employed early, saves the patient many hours of the severest suffering, while, as Richter remarks, the local effusion of blood accompanying it is best calculated for resolving the inflammation itself. Richter accordingly asserts, "that he has seen the bleeding during the operation afford immediate relief, and that in one hour after, the patient has already been enabled to breathe by the mouth."

The narrowing or complete closure of the glottis, to which the symptoms of impending suffocation are immediately owing, Richter supposes to depend, not so much in general on its thickening or swelling, as on its spasmodic constriction, produced, as he says, by the irritation which accompanies the inflammatory state.

This connexion, we may observe, of inflammation and spasm, is remarkable in most cases of inflammation, affecting organs, whose structure and constitution, like those of the larynx, admit the combination; it is particularly the case with organs in which secreting membranes, highly vascular and sensible, are combined with a muscular structure; thus we have frequent instances of inflammation of the intestines, accompanied by spasmodic colic, and of inflammation of the bladder, accompanied by spasm of its neck, and consequent retention of urine. We may thus understand why opium is so frequently useful in inflammatory diseases. We are too much in the habit of considering the instances in which it is so, as mere exceptions to the general rule, which we need not seek to explain. With regard, however, to cynanche laryngea, Sir G. Blane, speaking of two favourable cases, says, "opiates were abstained from,"—and "that the disease being inflammatory, there is every reason for avoiding them till the complaint shall have been fully subdued by the antiplogistic treatment."—Vol. VI. *Med. Chir. Researches*, p. 149.

With this view of the proximate cause of the disease, Richter sets aside the objection made by Sharp to the utility of the operation: the objection rested on his observation, that the glottis was free and open after death, but the constriction being spasmodic, it is evident that this was no more than might be expected; and it is equally plain that it cannot affect the utility of the operation in any degree.

In connexion with this view of the immediate cause of death in cases of cynanche laryngea, we may mention a conjecture relative to the nature and treatment of croup, which, if well founded, may be of some practical importance. Richter says nothing of the utility of bronchotomy in the latter disease, probably he did not think it necessary to mention it separately or distinguished from cynanche laryngea, considering the arguments stated in favour of the operation in one as applicable in every respect to the other.

It must be allowed, we think, that foreign bodies in the trachea usually kill by exciting spasmodic constriction of the glottis; perhaps we may go yet further, and conclude, with Mr. G. Bell,* that they always kill in this way; those cases indeed excepted, in which death ensues only at a period long subsequent to the accident, and is owing to inflammation and its consequences.

The two following considerations seem almost conclusive in favour of this opinion: 1st, No foreign body, nearly large enough totally to obstruct the trachea, can pass through the glottis. 2d, The chief symptoms of a foreign body in the trachea occur in paroxysms, and it is during a fit of convulsive coughing and laborious breathing, that the patient usually dies.

It is true that this latter fact may be explained, when the foreign body is loose and moveable, from its being at intervals forced upwards into the glottis, which it not only thus increasingly irritates, but may be large enough nearly to fill; but are not the symptoms such also, when the substance sticks in the lower part of the trachea or in the bronchiæ? and if so, must we not conclude that foreign bodies in the air passages prove fatal, rather as causes of irritation than of obstruction; rather by exciting the muscles to contract than by interrupting the ingress and regress of the air? As to the propriety of bronchotomy in croup, the opinion of Mr. Chevalier (who seems to have paid considerable attention to the subject,) exactly accords with our own. He says, "I doubt whether death is often to be ascribed to such an accumulation of lymph as absolutely precludes the transmission of air."

If we consult the dissections recorded by authors, especially those by Cheyne and Jarine, we find that the following appearances have been observed. An effusion of lymph lining the larynx and upper part of the trachea, sometimes extending as far as its division, and rarely into the more minute bronchial tubes; the consistence of this lining is various, sometimes it has not sufficient tenacity to admit of its being separated by the forceps or

* Operative Surgery, Vol. ii. p. 13.

finger from the membrane to which it adheres; sometimes it is so firm that it may be drawn out entire from the trachea, and when it is extended into the bronchial tubes, it exhibits and long retains an aborescent form. Besides this effusion of lymph in the inner surface of the lining membrane, there is often considerable swelling around it, from the effusion of lymph on its external surface.

From the combination of these changes of structure, a considerable lessening of the diameter of the trachea must result; yet it does not appear that this is ever sufficient entirely to obstruct the passage, or even to reduce it to such a degree of narrowness as seems to have occurred in chronic cases, some time previous to death. We may remark, that the false membrane being sometimes so loose and moveable as to admit of its expectoration, a part of it may be carried upwards and downwards with every expiration and inspiration, the rest remaining fixed; it may thus act as a valve during expiration, and cause at intervals its entire and sudden obstruction. In general, however, after death, no part of the membrane is found so disposed as to be capable of acting as a valve, the whole of it adhering equally and firmly to the mucous membrane.

The bronchiæ and air cells, frequently also the trachea itself, are found loaded with mucus; and this is often in such quantity that some authors think it the usual cause of death; and certainly, if such an opinion were well founded, nothing could be expected from the performance of bronchotomy; but we have good reason to believe that this accumulation of mucus is merely a consequence of the original affection, which might be defined, inflammation of the lining membrane of the trachea, of the kind called adhesive, i. e. terminating in the effusion of coagulable lymph. This termination is a distinguishing feature of the disease, the effusion of mucus is not an immediate consequence of the inflammation; makes no part of the disease in question, but is merely a sequela of it, common to this and numerous other disorders of the respiratory system. We are warranted then in concluding from the dissections on record, that in general the effusion of lymph, the characteristic and exclusive produce of the inflammation in this disease, does but partially obstruct the air passages, although the accumulation of mucus, which ultimately occurs, perhaps in every case, may do so more completely.

The *symptoms* of croup are those which arise from a spasmodic affection of the glottis, combined with a certain degree of obstruction in the trachea and bronchiæ; and the characters which distinguish croup from severe catarrh or bronchitis, in young children, are owing entirely to the spasm of the glottis. The alternate remission and aggravation of the dyspnoea can

depend on this cause alone, and the peculiar stridulous respiration is attributable as much to this as to the narrowing of the trachea, if not more so. The occurrence of the chief symptoms of croup in paroxysms is acknowledged by the best observers; but it has received, perhaps, much less attention than it deserves in the explanation of the nature of the disease, and in the direction of its treatment. So prominent a feature is this intermission in many cases of the disease, that in the most classical work on the subject (that of Jarine) a distinct species is treated of, under the name of *Intermittent Croup*.

Taking it as an acknowledged truth, obvious to every observer, that the most urgent symptoms of croup are subject to alternate remission and aggravation, and considering that the effusion of lymph, if regarded merely as the means of lessening the diameter of the trachea, neither in any degree accounts for this peculiarity in the symptoms, nor appears an adequate cause of their urgency, we are justified in concluding that the effusion has an additional and different influence. The best established physiological principles, the impartial history of the disease in question, the history of diseases strikingly analogous, particularly cynanche laryngea, and cases of foreign bodies in the trachea, the effect of remedies, all concur in the indication, that this additional influence of the effused lymph consists in an irritation of the glottis sufficient to produce its spasmodic contraction.*

The symptoms of this affection of the glottis frequently occur, however, so early in the disease, that the mere existence of inflammation, previous to the effusion of lymph,† must be sufficient to afford this degree of irritation. To the connexion between inflammation and spasm, and the frequent examples of it in organs of a certain structure, we have already alluded, when speaking of cynanche laryngea.

According to the view we have taken of the nature of this disease, bronchotomy may give relief in it, although we should be unable to open the trachea below the point to which the false membrane has extended. This opinion may appear at first view absurd—it is, perhaps, novel; but it is still reasonable, unless

* Dr. Albers, of Bremen, seems to admit this opinion. He says, “we cannot deny that the spasm of the glottis, and perhaps also of the bronchiæ may contribute to suffocation, as these passages are not always completely obstructed by coagulable lymph.—V Abhandling uber de croup-von Ludwig Jarine Miet euner Vorrede und Aumerkungen hercius gegeben von Dr. J. A. Albers, Leipzig.

† Mr. Lawrence mentions a case in which the patient had well marked symptoms of cynanche laryngea, though after death the membrane appeared quite healthy, and the passage not at all narrowed.

the above statements, on which it is founded, can be pronounced utterly incorrect. The truth, however, of the proposition has yet to be decided by experience; and we can only now inquire how far the result of cases in which the operation has been tried hitherto, influences the question of its efficacy.

The operation has undoubtedly succeeded in many instances, but the success has been differently explained. In general, it seems that the operator has figured to himself the trachea nearly or entirely closed by coagulable lymph at a certain point, and has attributed his success to his having made an opening *below* that point; but what proof have we that this was really the case? No reason can be adduced why we should attribute success to this cause, and not to the mere fact of an opening having been made below the glottis, considering that as the real point of obstruction; it is as probable, that in these successful cases the false membrane extended below the artificial opening, as that it did not.

Mr. Chevalier, impressed with the conviction that the effusion of lymph was not such as "absolutely to preclude the transmission of air," ascribes the success of the operation in his cases to "its emptying the trachea of mucus;" but there is no proof that it was really owing to this cause, except that mucus was expelled through the artificial opening. May we not still ascribe the success, and with even better reason, to the cause we have mentioned, considering still the contracted glottis as the chief impediment to the transmission of air.

It may be objected to the view we have taken that, according to it, the operation ought always to succeed, whilst there are but too many instances of its failure. We only maintain, however, that, contrary to the current opinion, the operation is calculated to give relief; that it *may* succeed even where we cannot make an opening *below* the limit of the false membrane; and we would argue also, that the failure generally ascribed to the impossibility of making the opening in this situation, is obviously and justly ascribable to other causes, chiefly to its being deferred, until, in consequence of long continued laborious breathing, and the imperfect influence of the air on the blood, these changes in the general system are induced, which (as Mr. Lawrence and Richter have so strongly insisted) are causes of death, even when the original obstruction may have been removed.

The accumulation of mucus, though no part of the original disease, yet occurs to such a degree in the latter period of it, that it becomes a principal source of danger, especially as at this period sufficient strength does not remain to admit of its expectation. To these causes we would attribute the failure of the operation, when properly performed, rather than to the one commonly assigned—and if we are correct, we must conclude

that the operation has failed in general, only because it has been employed too late. From what has been stated we would draw the following conclusions:—

1. That the general nature of the disease affords reason to expect the best effects from bronchotomy.
2. That these effects may yet be expected, when we cannot open the trachea below the limit of the effused lymph.
3. That where success has been obtained, it is to be ascribed merely to the introduction of air below the glottis, the real seat of the obstruction.
4. That the frequent failure of the operation may, in general, be ascribed to its being performed at so late a period; when the exhaustion of vital power and the accumulation of mucus, which cannot be expelled, are sufficient causes of death, though the original obstruction should be entirely removed.

The above remarks are submitted to the profession with the hope that they *may be* verified; and we could suggest, as subjects of peculiar interest, the observation of the exact circumstances under which the operation succeeds or fails; and this with a view to determine the causes of failure and success, so essential to the right application of the operation, and certainly hitherto not well understood. It will not, we trust, be disputed, that we are fully justified in trying the operation at an *early* period as often as opportunity offers.

In such cases the difficulty of breathing is so urgent, as to require speedy relief. Cynanche tonsillaris is rarely accompanied with sufficient swelling to threaten suffocation, before suppuration has taken place; and when this has occurred the puncture of the abscess will generally afford sufficient relief; if, however, the abscess were neglected, and left to burst spontaneously, the event might be delayed long enough to obstruct considerably, or even entirely hinder respiration.

An abscess in the tonsil can scarcely be opened too early. Should we, even through mistake, puncture the tonsil prematurely it is useful as a scarification, and it will be perfectly safe if done as recommended by Mr. A. Burns,* i. e. “by carrying the instrument directly backward, as if to cut off a segment of the tumour. Should the puncture of the abscess be delayed too long, not only does the patient suffer, when the abscess is large, all the distress arising from obstructed respiration, but there is also, as Mr. Burns has pointed out, the greatest danger of the pus rushing with the air into the trachea, as soon as the sudden bursting of the abscess allows of a free and full inspiration. Mr. Burns gives a case in which this actually happened, and induced

* Surgical Anatomy of the Head and Neck, page 257.

immediate suffocation. He recommends, therefore, the opening of the tonsillary abscess by a trocar, and warns us that since the abscess sometimes points through the velum, we are not always to expect the usual appearance of the tonsil, and to wait for this before puncturing the abscess.

PATHOLOGY.

3. *Bones containing Metallic Mercury.*—These were found in two subjects, both young. In the first, the ribs, the ossa ilium, the upper and lower bones of the leg, exhibited this appearance on being struck; and at present, several years after, mercury can still be shaken from them in the same way. The metallic mercury flowed out upon the dissecting tables, macerating tubs, and other apparatus employed by professor OTTO and his friend Dr. GURER, whilst in the act of cleaning the bones. A piece, taken from the middle of one of the bones, was analysed by professor FISCHER, and demonstrated evidently the presence of mercury. In fine, Dr. Otto has published these two singular facts, as affording “the most undeniable evidence of what is so generally doubted, the power of the living system to reduce the oxides of mercury, and the actual appearance of the latter, so reduced, in the bones.”—*Med. and Phys. Jour.*

INDEX TO VOL. III.

	Page		Page
ANATOMY of the Fœtal Brain, by		Effects and Properties of Cold,	
Frederic Tiedemann, -	26-241	by Moricheau Beaupre, -	126
Adelon's report on the Experi-		Emetics successfully employed	
ments of Barry, -	238	in affections of the Ears, -	225
Affections of the Urinary Organs,		Extirpation of the parotid gland,	
Prout on the, - - - -	254	by Prof. G. M'Clellan, -	387
Application of Lunar Caustic,		Flourens M. on the sense of	
Higginbottom on the, -	290	Hearing and the causes of Deaf-	
Account of the present state of		ness, - - - -	214
Medicine in Italy, -	406	Fosbrook on the relations of the	
Atlee's case of Tracheotomy for		Kidneys and the Brain, -	214
the removal of a foreign sub-		Foster's Thesis on Neuralgia, -	362
stance from the trachea, -	191	Formations, Successive of Organ-	
Ayre on Dropsy, - - -	71	ized Beings, - - - -	154
Brain, Anatomy of, -	26-241	Gout, Emetics successfully em-	
Beaupre's Treatise on the Effects		ployed in, - - - -	225
and Properties of Cold, -	126	Galvanism, Experiments on, by	
Bogros on the Tubular Structure		Prof. Green, - - - -	256
of the Nerves, - - - -	213	Headachs, Essay on, by M. Beau-	
Barry's Experiments, - -	238	pre, - - - -	126
Balber on the effects of Iodine, -	239	Hearing, M. Flourens on the	
Burden on Nyctalopia, -	353	sense of, - - - -	214
Casper Joh. Ludw. Charakteris-		Higginbottom on Lunar Caustic, -	290
tik der Franzoesischen Medi-		Injuries of the head producing	
cin, - - - -	5	Convulsions, - - - -	219
Calorifitor, Prof. J. Green's Ac-		Iodine Effects, - - - -	239
count of, - - - -	375	Irritation, Travers on Constitu-	
Curvature of the Spine, John		tional, - - - -	303
Shaw on, - - - -	43	Improvements in Medicine, Sur-	
Church on the uncertainty of the		gery, &c. - - - -	211 & 400
signs of the Rupture of the		Janson's case of removal of a	
Uterus, - - - -	175	large portion of the Scrofula, -	237
Convulsions, Cerebral, from slight		Kidney's, Relation of to the	
injuries on the Head, -	219	Brain, - - - -	214
Croton, Tigilium, New Applica-		Knapp on Apocynum Cannabi-	
tion of, - - - -	237	num, - - - -	194
Cupping glasses to Poisoned		Lachrymal Nerve, - - - -	213
Wounds, - - - -	238	Lunar Caustic, Higginbottom on, -	297
Collhoun's Prout on the Urinary		M'Clellan Prof. Cases of extirpa-	
Organs, - - - -	254	tion of tumours of the neck, -	377
Costiveness, Reece on, -	334	-----Case of extirpa-	
Carotid Artery, M'Clellan's three		tion of the parotid gland, -	387
cases of Ligature of the, -	397	-----For securing the	
Dropsy, Researches into the Na-		common Carotid Artery, -	397
ture and Treatment of, by John		Medicine, Improvements in, -	400
Ayre, - - - -	71	Meyraux M. On the Cauterization	
Deafness, Flourens on, -	214	of Pustules in Small Pox, -	215
Dyspnœa, Singular case of, -	216	Nervous System, Observations on	
Deleau's case of a deaf and dumb		the Diseases of, - - - -	217
boy, - - - -	400	Nose, Re-union of, - - - -	233
Essay on Headachs and their		Necrosis, - - - -	234
cure, by Walter Vaughan, -	106	Nyctalopia, Burden on, -	353

INDEX.

	Page		Page
Neuralgia, Foster on, - -	362	Smith, Prof. On Suture of the	
Neck, Tumours of, - -	377	Palate, - - - -	396
Ovarium, Dropsy of, - -	71	Surgery, Improvements in, 211-400	
Otitis, Cases of, - -	225	Small Pox, Cauterization of Pus-	
Operations, Prof M'Clellan's, 277		tules in, - - - -	215
Oppenheim's Account of the		Tiedemann on the Anatomy of	
present state of Medicine in		the Fœtal Brain, -	26-241
Italy, - - - -	406	Treatise on the Effects of Cold,	
Prout's Inquiry on Affections of		by M. Beaupre, - - -	126
the Urinary Organs, - - -	254	Tracheotomy, Case of, by John	
Parotid Gland, Extirpation of, by		Atlee, M. D. - - - -	191
Prof. M'Clellan, - - -	387	Travers on Constitutional Irrita-	
Palate, Suture of, by Prof. Smith, 396		tion, - - - - -	303
Researches into the Nature and		Tumours, Cases of, by Prof.	
Treatment of Dropsy, by Jo-		M'Clellan, - - - -	377
seph Ayre, M. D. - - -	71	Uncertainty of the Signs of Rup-	
Rupture of the Uterus, by W.		ture of the Uterus, by William	
Church, M. D. - - -	175	Church, M. D. - - -	175
Re-union of the Nose, - - -	233	Urinary Organs, Prout on the	
Reece on Costiveness, - - -	334	Diseases of, - - - -	254
Shaw on Diseases of the Spine, 43		Vaughan on Headachs and	
		their Cure, - - - -	106

CONTENTS.

REVIEWS.

ART.	PAGE
I. The Anatomy of the Fœtal Brain, with a comparative exposition of its structure in animals. By FREDERIC TIEDEMANN, M. D. &c. - - - - -	241
II. An Inquiry into the Nature and Treatment of Diabetes, Calculus, and other Affections of the Urinary Organs, &c. &c. By WILLIAM PROUT, M. D. F. R. S. - with Notes and Additions, by S. COLHOUN, M. D.	254
III. An Essay on the Application of the Lunar Caustic in the cure of certain Wounds and Ulcers. By JOHN HIGGINBOTTOM, &c. - - - - -	290
IV. An Inquiry concerning that disturbed state of the Vital Functions usually denominated Constitutional Irritation. By BENJAMIN TRAVERS, F. R. S. &c. -	303
V. A Practical Dissertation on the means of Obviating Costiveness, &c. By RICHARD REESE, M. D.	334

ORIGINAL PAPERS.

I. Observations on Nyctalopia. By T. R. BURDEN, M. D.	353
II. Case of a Horned Woman. By G. R. MORTON.	355
III. Some Experiments and Remarks on Galvanism. By J. GREEN, Esq. &c. - - - - -	356
IV. Extract from an Inaugural Dissertation on Neuralgia, &c. &c. By JOEL FOSTER, M. D. - - - - -	362
V. The Calorificator. By J. GREEN, Esq. &c. - -	375
VI. Three Cases of Specific Tumours in the Neck, which were successfully extirpated. By GEORGE M'CLELLAN, M. D. &c. - - - - -	377
VII. A Case in which a Schirrhous Enlargement of the whole Parotid Gland was successfully Extirpated. By GEORGE M'CLELLAN, M. D. - - - - -	387

CONTENTS.

ART.	PAGE
VIII. Suture of the Palate. By NATHAN SMITH, M. D. Professor of Surgery in Yale College.	396
IX. Three Cases in which Operations for securing the Com- mon Carotid Artery have lately been performed. By GEORGE M'CLELLAN, M. D.	397

IMPROVEMENTS IN MEDICINE, SURGERY, &c.

Physiology.

1. Report made by M. Magendie to the Academy of Sciences, on the
subject of a Boy, Deaf and Dumb from his Birth, who obtained
Speech and Hearing under the care of M. Deleau, jun. 409

Collectanea Medica.

2. An Account of the present state of Medicine in Italy. By Fr. W.
Oppenheim, 406

Anatomy.

3. Dr. Barclay on the Eyes. 423

Surgery.

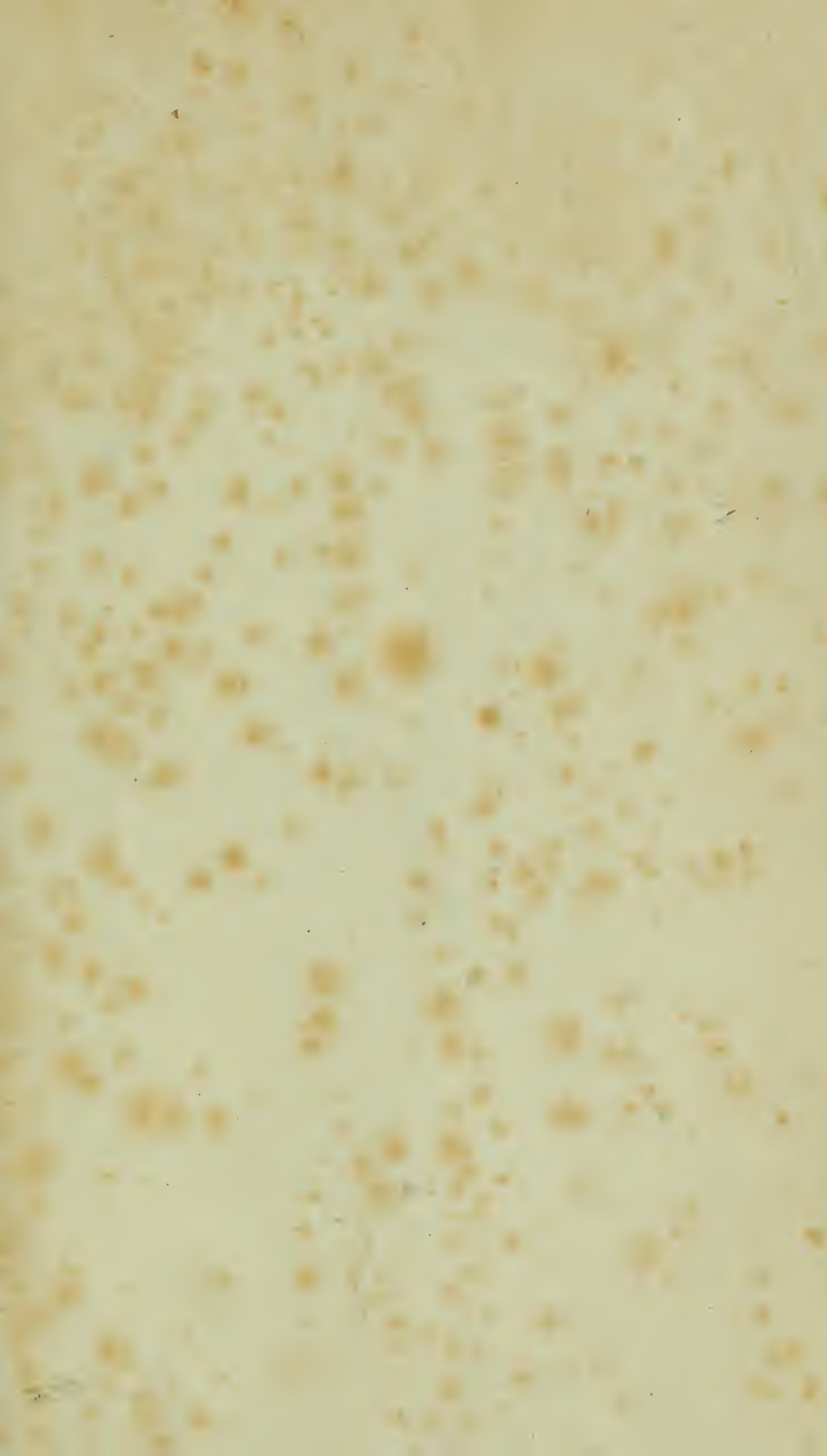
4. Richter on Bronchotomy. 425

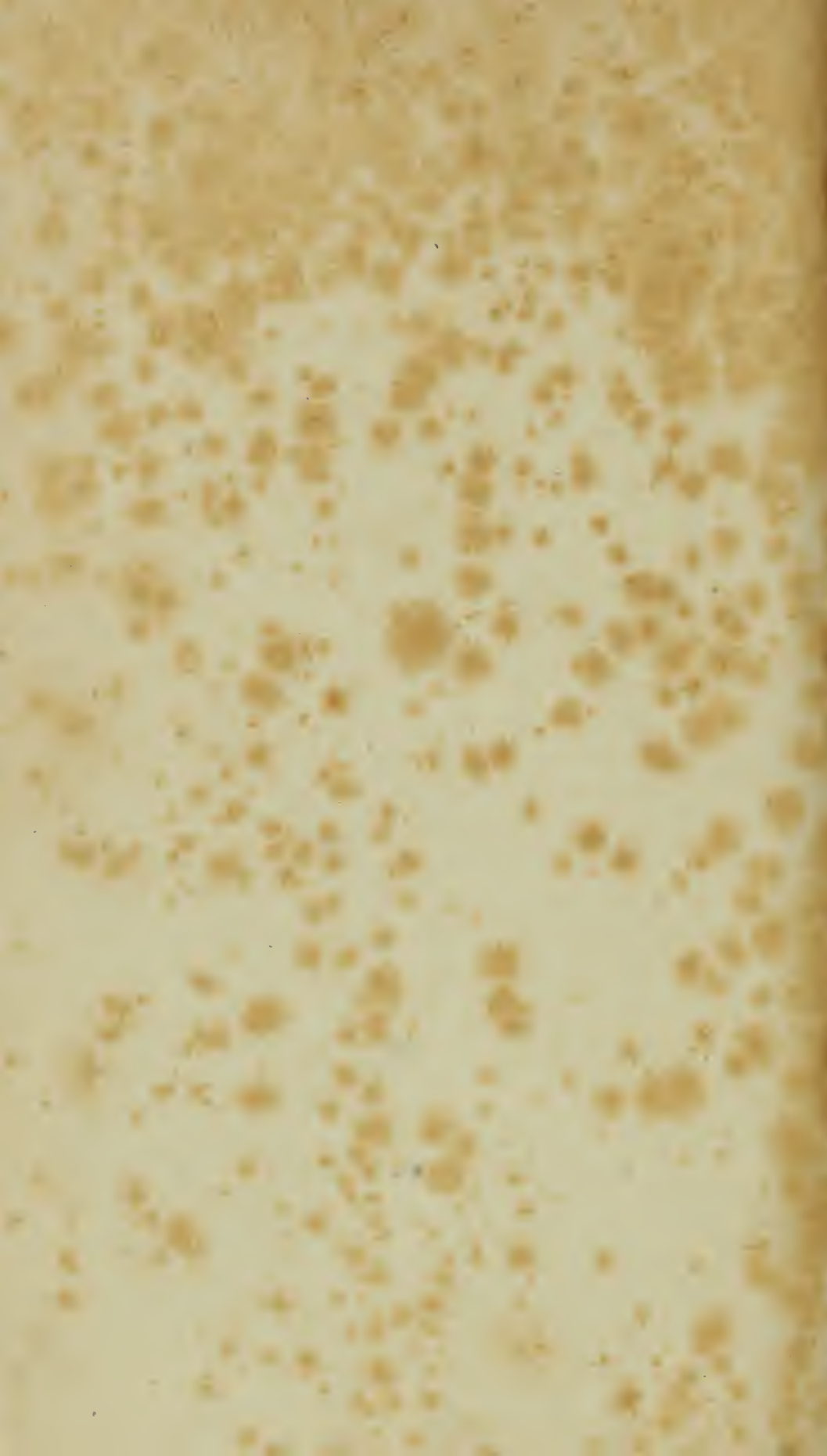
Pathology.

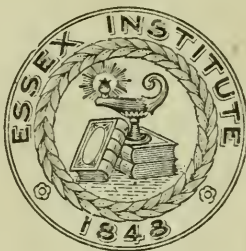
5. Bones containing Metallic Mercury. 436











THE LIBRARY
OF THE
ESSEX INSTITUTE



PRESENTED BY

Received _____

